Service Manual

XG 7

2006-100, -200

XG 2

2006-300, -400

XG E

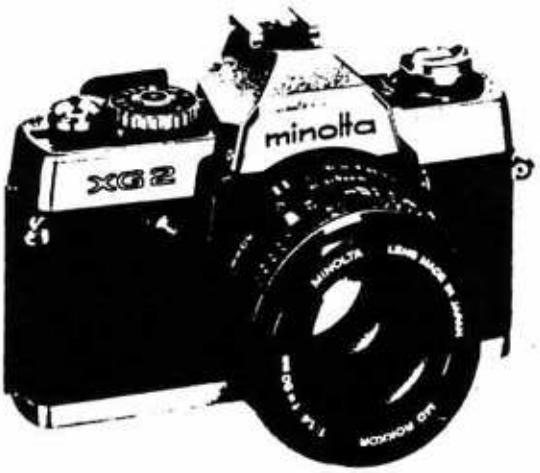
2006-500, -600

Shutter Parts List
for XG series

MINOLTA

MINOLTA XG7 2006-100(2006-200)
MINOLTA XG2 2006-300(2006-400)
MINOLTA XG-E 2006-500(2006-600)

( ) Black body



TYPE

Electronic Auto Exposure Control 35 mm Focal Plane Shutter Single Lens Reflex Camera.

STANDARD LENS

MD ROKKOR 50 mm F 1.4 (2521)
MD ROKKOR 50 mm F 1.7 (2520)
MD ROKKOR 50 mm F 2 (524)···for export

AE SYSTEM

Aperture priority system

SHUTTER

Electronic control lateral focal plane shutter

Shutter speed : Auto 1/1000~1 sec. (Stepless)
Manual 1/1000, 1/500, 1/250, 1/125, 1/60, 1/30, 1/15, 1/8, 1/4, 1/2, 1 sec. and B.

Release : Magnetic release (with release lock to suspend operation when battery voltage is too low or shutter speed exceeds 1/1000).

Dial : Click-stop rotary dial with A-position lock and ±2 EV exposure correction scale in Auto.

Self-timer : About 10 sec. operation. Started by shutter button with set-dial at SELF-TIMER. Electronic control. Operation is indicated by LED blinking at front of camera. Blinking cycle is faster after 7.5 sec.

Synchro contact : X contact (electro flash is tuned to longer sec. time than 1/60 sec.). MF, M and FP are tuned to longer sec. than 1/15 sec.

Synchro terminal: Hot shoe and JIS-B type socket (Electric shock proof)

Synchro auto control: With exclusive strobo (8668) mounted and charge completed, when shutter is automatically operated, exposure is at X-tuned speed (1/60) and then LED blinks in finder.

FILM FEED

Winding : Operation lever type. Winding angle 130°, reserve angle 30°.

Auto winding : Possible with exclusive auto winder (8731-200) mounted (at bottom of camera).

Spool : 4 claws to wind film reversely.

Film counter : Auto reset type calculator.

Film signal : Built-in

Re-winding : Re-winding button is automatically reset as a result of winding.

Back cover : Hinged, one-touch locking, removable type.
Unlocked by rewinding knob operation.

FINDER

Type : Eye level type (Pentagon prism)

Focal plate : Split image and micro prism for center, mat for periphery.

View rate : 93% (to 24×36 mm standard image)

Magnification : 0.9 (at ∞ with 50 mm standard lens)

Visibility : −1 diopter

Indication in finder: Exposure indication by LED (two-print indication represents "intermediate"); shutter speed scale.
High-speed non-interlocking LED (shutter doesn't operate when ▲ LED is on).
Exclusive strobo complete charge and X auto setting are indicated by LED blinking.

Mirror : Quick return system.
PO value: 123 (to standard picture)

EXPOSURE CONTROL

Metering system : Full-aperture TTL metering, central-zone weighted (overall) metering type.

Light receiving element:
CdS (on both sides of eye-piece)

Auto exposure range:
EV 2~17 (ASA 100, F 1.4 lens)

ASA sens. interlock range:
ASA 25-1600 (shutter dial pull-up).

Exposure correction:
Stepless up to ±2 EV to standard value (with lock at standard position, clicking every 1/2 step).

Exposure meter switch:
Touch switch type (ON when shutter button is touched).
When touched with gloved hand, it is ON at the 1st step of shutter button (about 0.5 mm stroke).

Power source : 2 silver oxide batterys
(equivalent to JIS-G13)
S-76 (SONY EVEREADY)
G-13 (NATIONAL, HITACHI, TOSHIBA) — Japan
S-76 (EVEREADY)
MS-76 (MALLORY) — U. S. A. Europe
RS-76 (RAY-O-VAC) - U. S. A.

Power supply switch:
ON with shutter button depressed (changeover switch provided separately).
(ON: Ready for operation, OFF: Metering circuit OFF, no shutter operation)

Battery check : Set changeover switch to B. C. and check by LED at front of camera. It is reset when released.

OTHERS

- Film signal attached
- Memo holder attached

EXCLUSIVE ACCESSORIES

- Auto winder G
- Auto electroflash 200X
- Remoto cord S 50 cm (20-in)
- Remoto cord L 5 m (16-ft.)

DIMENSIONS

Size (body only) : 138 (L) × 88 (H) × 52 (W) mm
5-5/8 (L) × 3-7/16 (H) × 2 (W) in.

Weight : 505g (excl. battery)
17-13/16 oz.

Description of Mechanism

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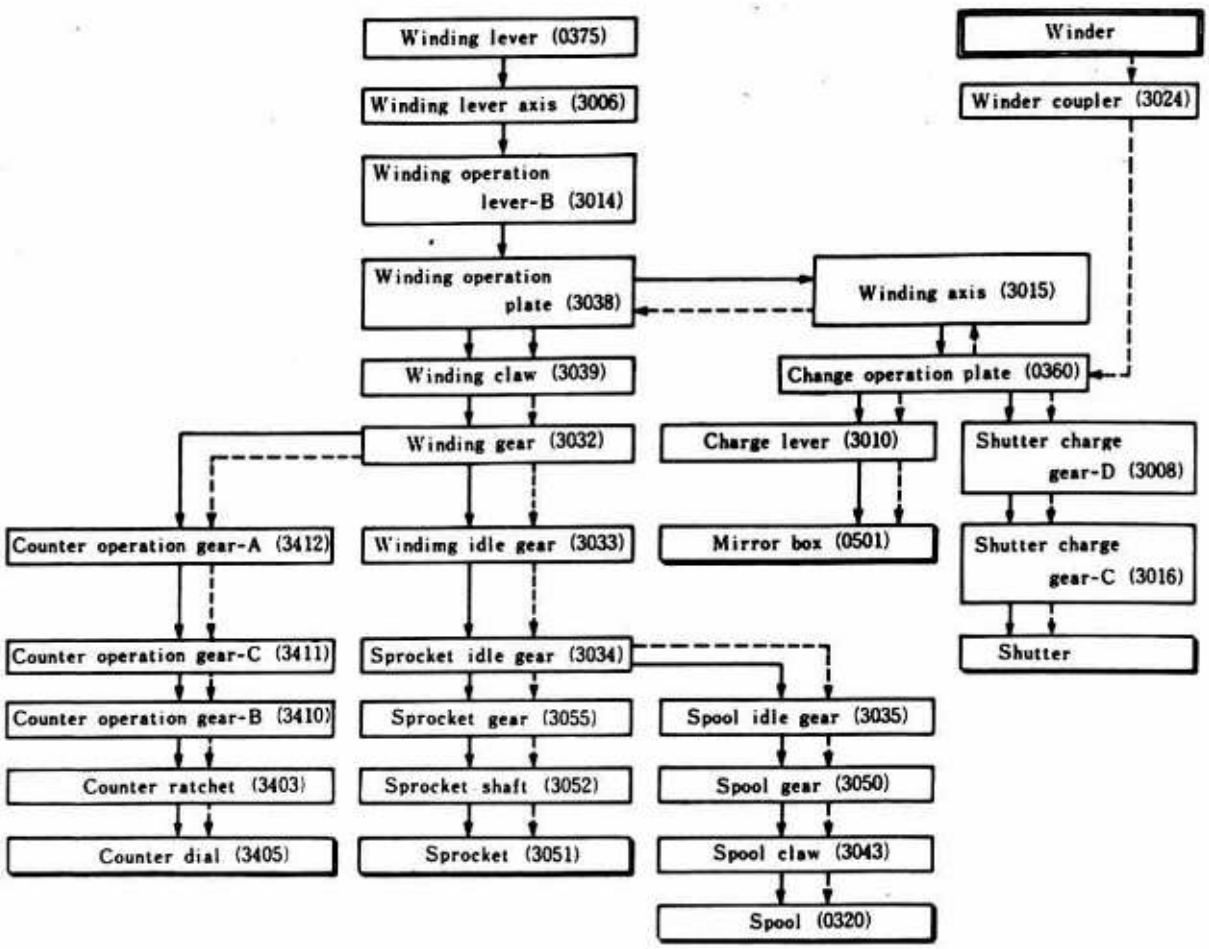
1. Winding Mechanism

⟨Operating Order⟩

⟨Arrows show interlocking marks⟩

←——— Manual winding

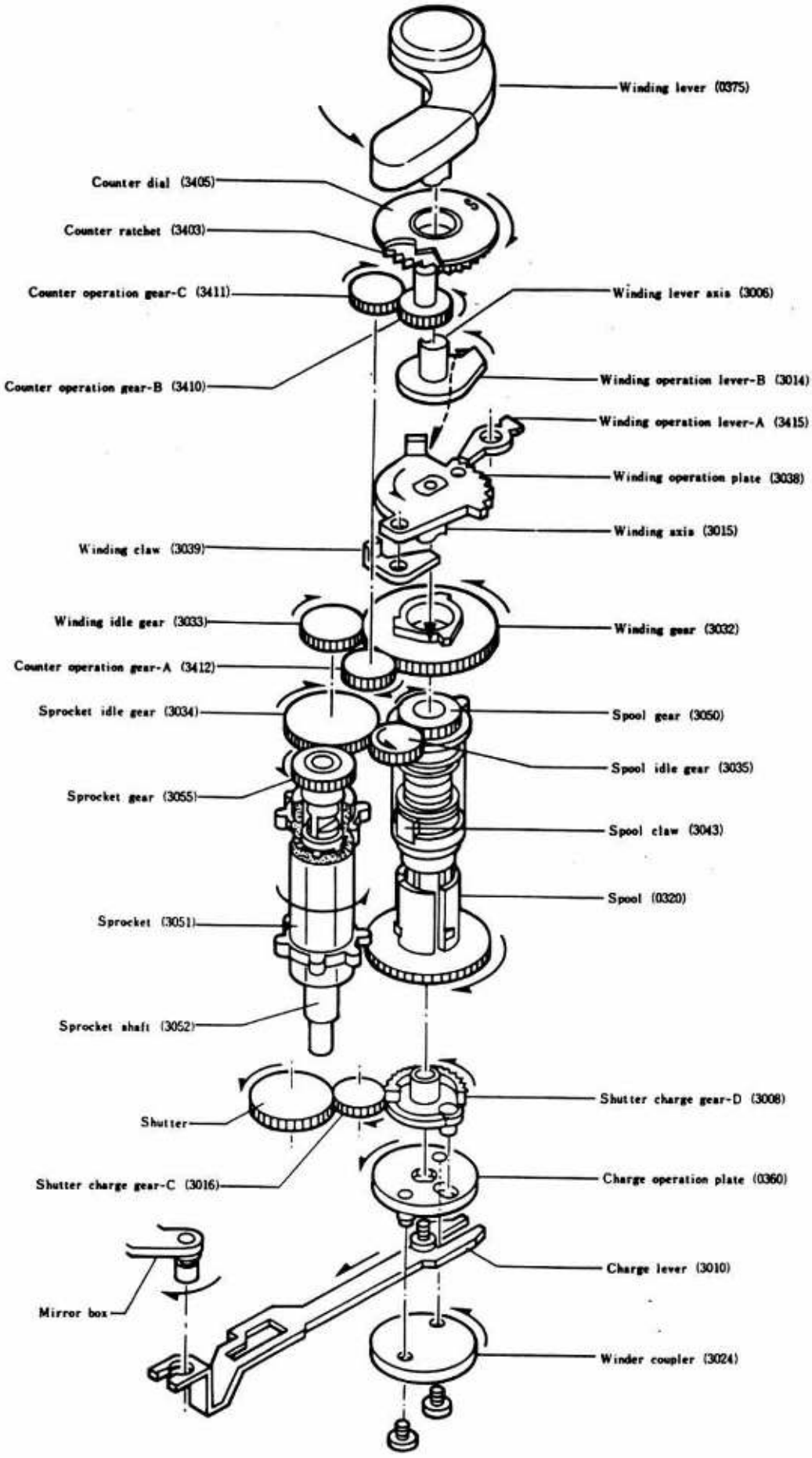
←- - - - Winder



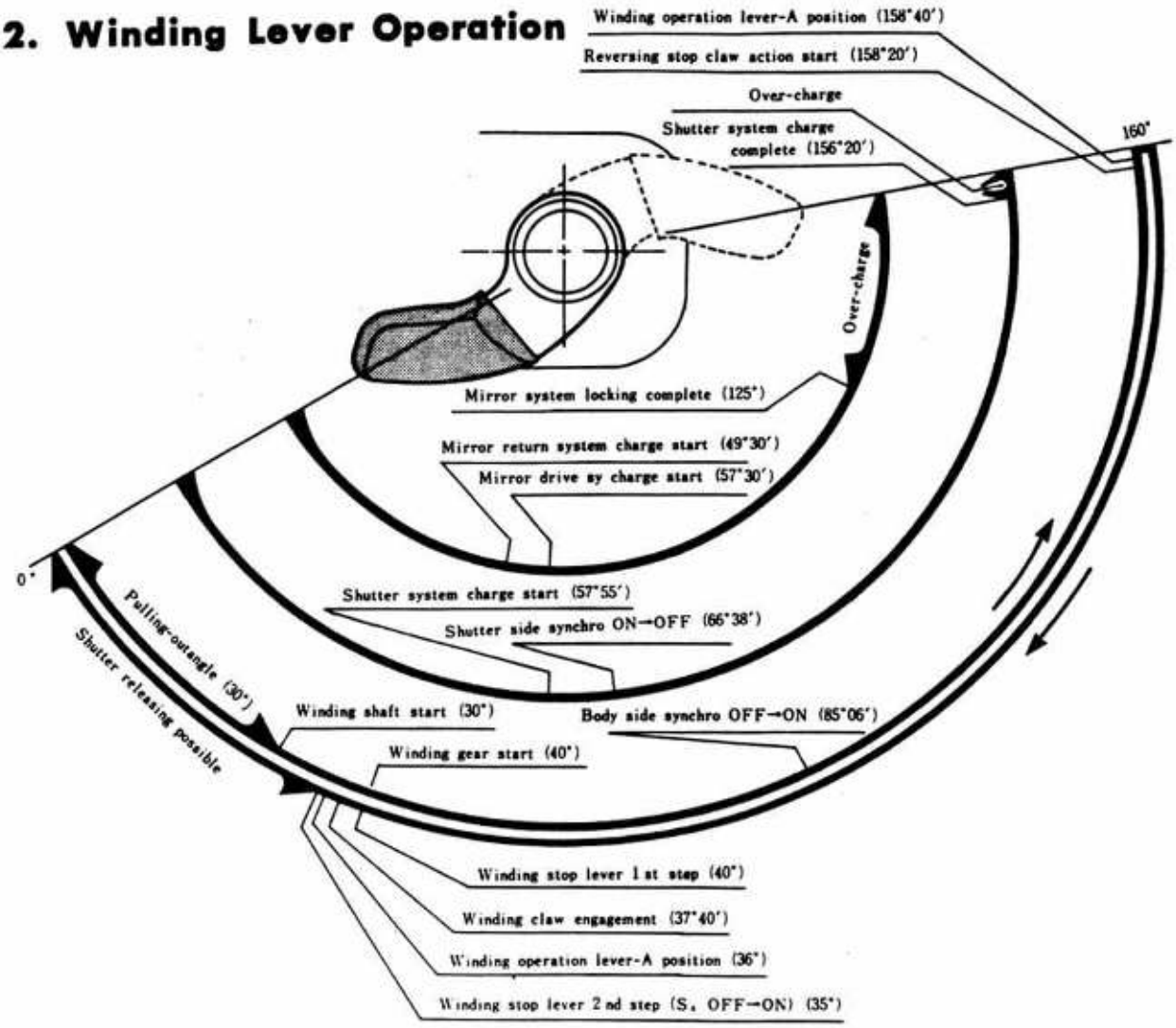
⟨Parts which require positioning⟩

Winding gear (3032) ← → Winding idle gear (3033)
Sprocket gear (3055) ← → Sprocket idle gear (3034)
Counter operation gear-B (3410) ← → Counter ratchet (3403)
Shutter charge gear-C (3016) ← → Shutter

- Winding operation plate (3038) is stopped by winding operation lever-A (3415) during winding, and then winding shaft (3015) does not return.
- Winding lever (0375) can be stored even during winding.
- Sprocket (3051) is turned 1-1/3 times and the spool once when winding lever is operated once.
- With the winding lever pulled out up to the allowance angle when winder is used, continuous winding is impossible unless the winding lever is released.


Winding lever (0375)
Counter dial (3405)
Counter ratchet (3403)
Counter operation gear-C (3411)
Winding lever axis (3006)
Counter operation gear-B (3410)
Winding operation lever-B (3014)
Winding operation lever-A (3415)
Winding operation plate (3038)
Winding axis (3015)
Winding claw (3039)
Winding idle gear (3033)
Winding gear (3032)
Counter operation gear-A (3412)
Sprocket idle gear (3034)
Spool gear (3050)
Spool idle gear (3035)
Sprocket gear (3055)
Spool claw (3043)
Spool (0320)
Sprocket (3051)
Sprocket shaft (3052)
Shutter charge gear-D (3008)
Shutter
Shutter charge gear-C (3016)
Charge operation plate (0360)
Charge lever (3010)
Mirror box
Winder coupler (3024)

2. Winding Lever Operation


Winding operation lever-A position (158°40′)
Reversing stop claw action start (158°20′)
Over-charge
Shutter system charge complete (156°20′)
160°
Over-charge
Mirror system locking complete (125°)
Mirror return system charge start (49°30′)
Mirror drive sy charge start (57°30′)
0°
Pulling-out angle (30°)
Shutter releasing possible
Shutter system charge start (57°55′)
Shutter side synchro ON→OFF (66°38′)
Winding shaft start (30°)
Body side synchro OFF→ON (85°06′)
Winding gear start (40°)
Winding stop lever 1st step (40°)
Winding claw engagement (37°40′)
Winding operation lever-A position (36°)
Winding stop lever 2nd step (S₁ OFF→ON) (35°)

3. Shutter Dial Mechanism

⟨General⟩

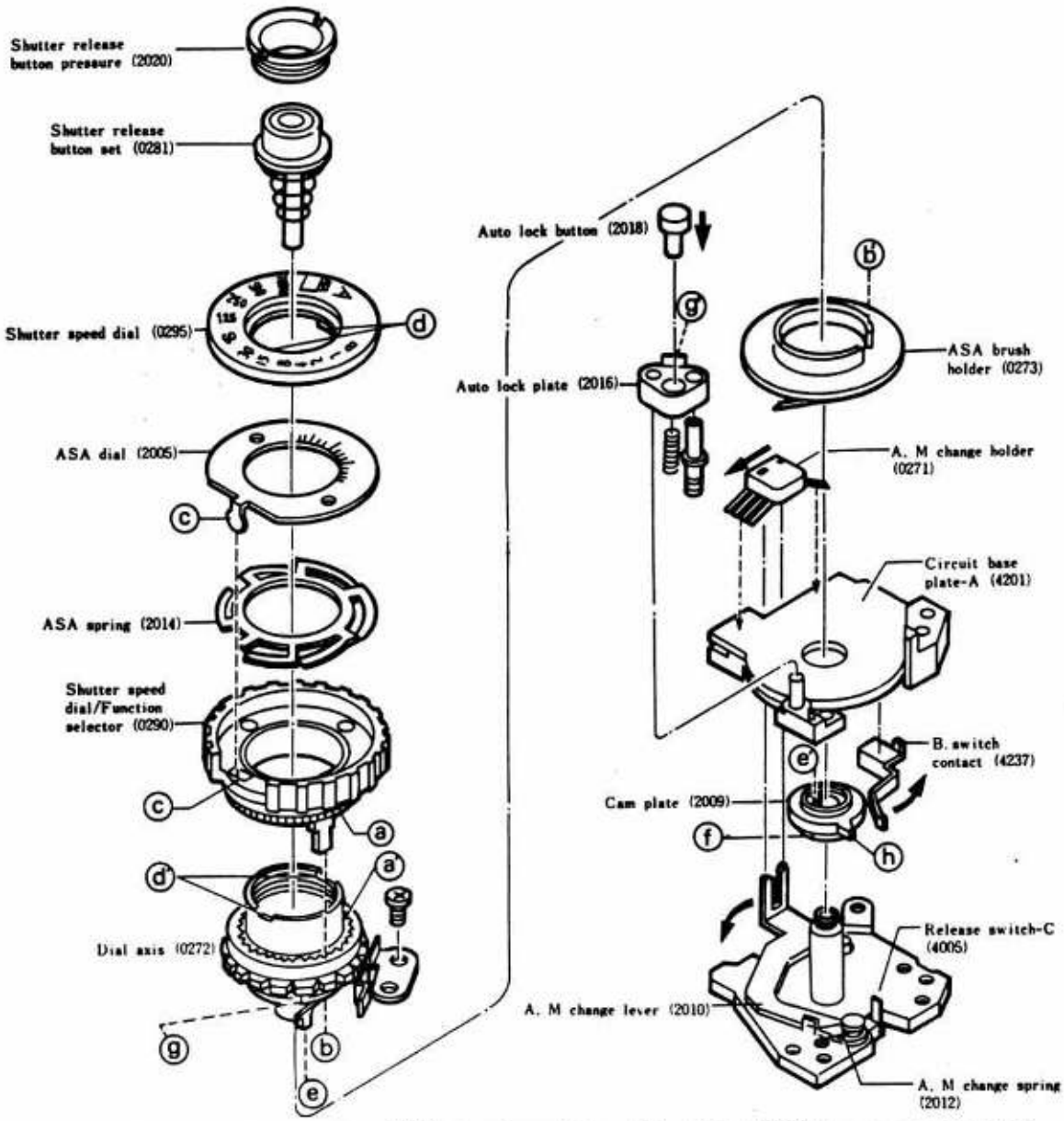
The shutter speed dial of XG is provided with Auto/Manual changeover, film sens. setting, exposure correction and release switch mechanisms.

⟨Operation⟩

1. Shutter speed dial (0290) is usually engaged with dial shaft (0272), ASA brush holder (0273), and ASA dial plate (2005) respectively at aa′, bb′ and cc′. The dial then rotates along with each of the parts.
2. Further, dial shaft (0272) is engaged with shutter speed dial plate (0295) and cam plate (2009) respectively at dd′ and ee′, and then rotates along with shutter dial (0290).
3. With shutter speed dial (0290) lifted up, it is only disengaged from dial shaft (0272) at aa′, and ASA brush holder (0273) and ASA dial plate (2005) rotate along with the shutter speed dial, but dial shaft (0272), shutter speed dial plate (0295) and cam plate (2009) do not rotate.

A. Auto/Manual/Bulb changeover

1. When shutter speed dial (0290) is set to Auto "A", cam plate (2009) being engaged with dial shaft (0272) at ee′ rotates, then AM change lever (2010) operates at cam face ⓕ in the direction of the arrow and AM change switch (S 8, S 10) of AM change holder is shifted to AUTO side of circuit board A (4201), simultaneously ⓖ of dial shaft (0272) is locked by ⓖ′ of auto lock plate (2016).


Shutter release button pressure (2020)
Shutter release button set (0281)
Shutter speed dial (0295)
ASA dial (2005)
ASA spring (2014)
Shutter speed dial/Function selector (0290)
Dial axis (0272)
Auto lock button (2018)
Auto lock plate (2016)
ASA brush holder (0273)
A. M change holder (0271)
Circuit base plate-A (4201)
B. switch contact (4237)
Cam plate (2009)
Release switch-C (4005)
A. M change lever (2010)
A. M change spring (2012)

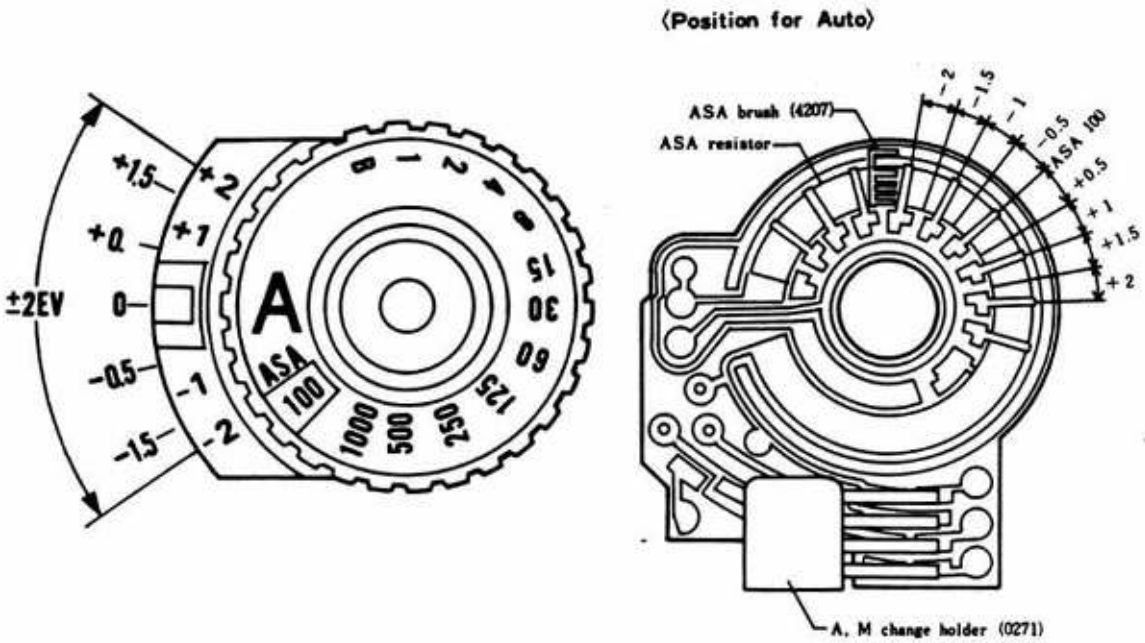
2. When auto lock plate (2016) is released from dial shaft (0272) by pressing auto lock button (2018) in the direction of the arrow, thus setting shutter speed dial (0290) to an optional position, cam face (f) of cam plate (2009) being engaged with dial shaft (0272) is also moved, and AM change lever (2010) is operated by the function of AM change spring (2012) in the opposite direction to the arrow and AM change switch (S 8 S 10) is then shifted to the manual side of circuit board (4201).
3. When shutter speed dial (0290) is set to "B" position, B switch contact (4237) is pushed by projection (h) of cam plate (2009) in the direction of the arrow, and then valve switch (S 5) including release switch C (4005) is turned OFF.

B. Film sensitivity setting

1. Film sensitivity can be set by lifting and turning shutter speed dial (0290) and setting it to the ASA sensitivity.
2. When shutter speed dial (0290) is lifted up, it is disengaged from dial shaft (0272) at aa'. Then dial shaft (0272) is not rotated but ASA dial plate (2005) and ASA brush holder (0273) rotated.
   And the ASA brush of ASA brush holder (0273) is set to the position on the sliding resistance of circuit board A (4201) corresponding to the sensitivity value of ASA dial plate (0295).

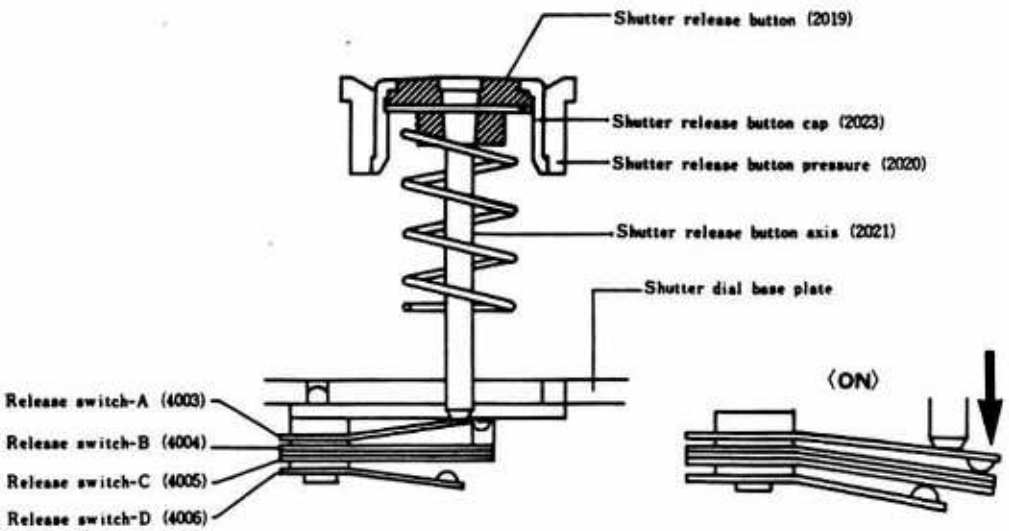
C. Exposure correction

1. Dial shaft (0272) is provided every 0.5 EV with click grooves up to ±2.0 EV from AUTO "A" position of shutter speed dial/Function selector. Exposure correction can be done by releasing auto lock plate (2016) and by setting "A" of shutter speed dial/ Function selector (0290) to the desired position. At that time, cam plate (2009) is also rotated, but AM change lever (2010) is on cam face f, and AM change switch (S 8. S 10) of AM change holder (0271) is on the AUTO side.
2. In accordance with the exposure correction setting, the ASA brush of ASA brush holder (0271) moves on the ASA resistance of circuit board A (4201), then auto exposure and shutter speed indications are changed corresponding to the amount of correction.



D. Release switch

1. Shutter release button set (0281) passes through the center of shutter speed dial. Shutter button shaft (2021) comes in contact with release switch A (4003), and is maintained by shutter button holder (2020).
2. Shutter button shaft (2020) is separated from shutter button cap (2023) by the insulator of shutter button (2019), thus forming touch switch (S 11).
3. Release switch A (4003), B (4004), C (4005) and D (4006) are secured on shutter speed dial base plate (0384). Metering switch (S 1) is formed by release switch A (4003) and B (4004); and release switch (S 2) is formed by release switch C (4005) and D (4006). When shutter button set (0281) is pressed, these switches are turned ON in order, thus starting the operation of the circuit.



4. Magnetic Release Mechanism

⟨Charge⟩

1. Winding operation causes charge operation plate (0360) and charge lever (3010) being engaged with the plate to be shifted in the direction of the arrow.
2. Further, mirror return lever (0524) being engaged with charge lever (3010) is moved in the direction of arrow to push spring lever (0581) in the direction of arrow, thus charging operation lever spring B (2039) and completing the preparations for release.

⟨Operation⟩

1. Release magnet operation plate (2030) is maintained being attracted by release magnet (2028) via release magnet york (2026) and release magnet retainer (2027).
2. When shutter release button set (0281) is pushed, the electric circuit operates. Then a magnetic field opposite to that of release magnet (2028) is generated at release magnet bobbin (0583) attached to release magnet york (2026), and current instantaneously flows due to the discharge of condenser.
3. Consequently, release magnet operation plate (2030) becomes unbalanced in attraction, then released by the function of operation lever spring (2039) and shifted in the direction of arrow.
4. Release operation lever A (2036), B (2037), C (0571) and mirror release bar (5021) are operated in order via ⓐ of release magnet operation lever (0582), then mirror release bar (5021) pushes mirror release lever (5022) in the direction of arrow thus release the mirror system and allowing the mirror preset system to operate.

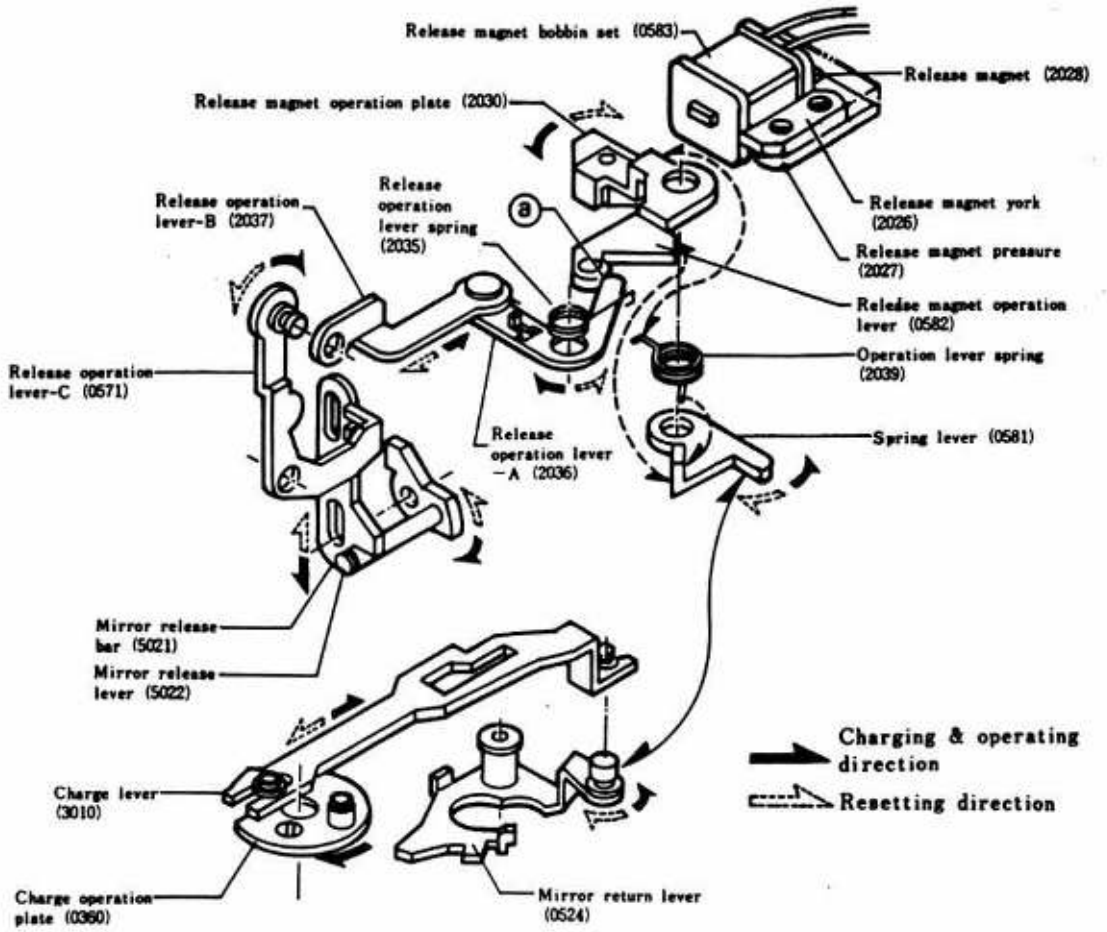
⟨Return⟩

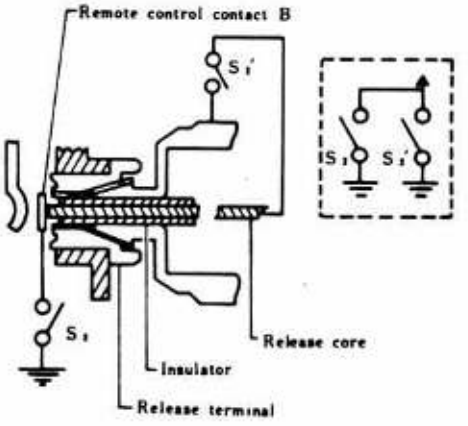
1. When mirror return lever (0524) has returned to the original position with exposure completed, spring lever (0581) retained by mirror return lever (0524) becomes free.
2. On returning of mirror return lever (0524), charge lever (3010) and release operation lever spring (2035) also return in the direction of dashed line.
3. Release operation lever spring (2035) pushes release operation lever-A (2036) and operates release magnet operation lever (0582) in the direction of arrow, then presses release magnet operation plate (2030) against release magnet york (2026).
4. Operation of release operation lever-A (2036) in the direction of dashed line causes release operation lever-B (2037), C (0571), mirror release bar (5021) and mirror release lever (5022) to return in the direction of dashed line, thus getting ready for the next charge.

Magnetic Release Operation by Remote Cord

When the remote cord is connected to the release terminal as illustrated, the release core is electrically connected to the remote control contact B, and then release switch (S_2) and remote cord switch (S_2') are connected in parallel to each other. The magnetic release is operated when remote cord switch (S_2') is turned ON.

The shutter speed indication can be checked by setting touch switch (S_{11}) or metering switch (S_1) to ON.


Release magnet bobbin set (0583)
Release magnet (2028)
Release magnet operation plate (2030)
Release magnet yoke (2026)
Release operation lever-B (2037)
Release operation lever spring (2035)
a
Release magnet pressure (2027)
Release magnet operation lever (0582)
Operation lever spring (2039)
Release operation lever-C (0571)
Spring lever (0581)
Release operation lever -A (2036)
Mirror release bar (5021)
Mirror release lever (5022)
Charging & operating direction
Resetting direction
Charge lever (3010)
Charge operation plate (0360)
Mirror return lever (0524)


Remote control contact B
S1'
S1
S1'
S1
Release core
Insulator
Release terminal

5. Shutter Mechanism

⟨General Description⟩

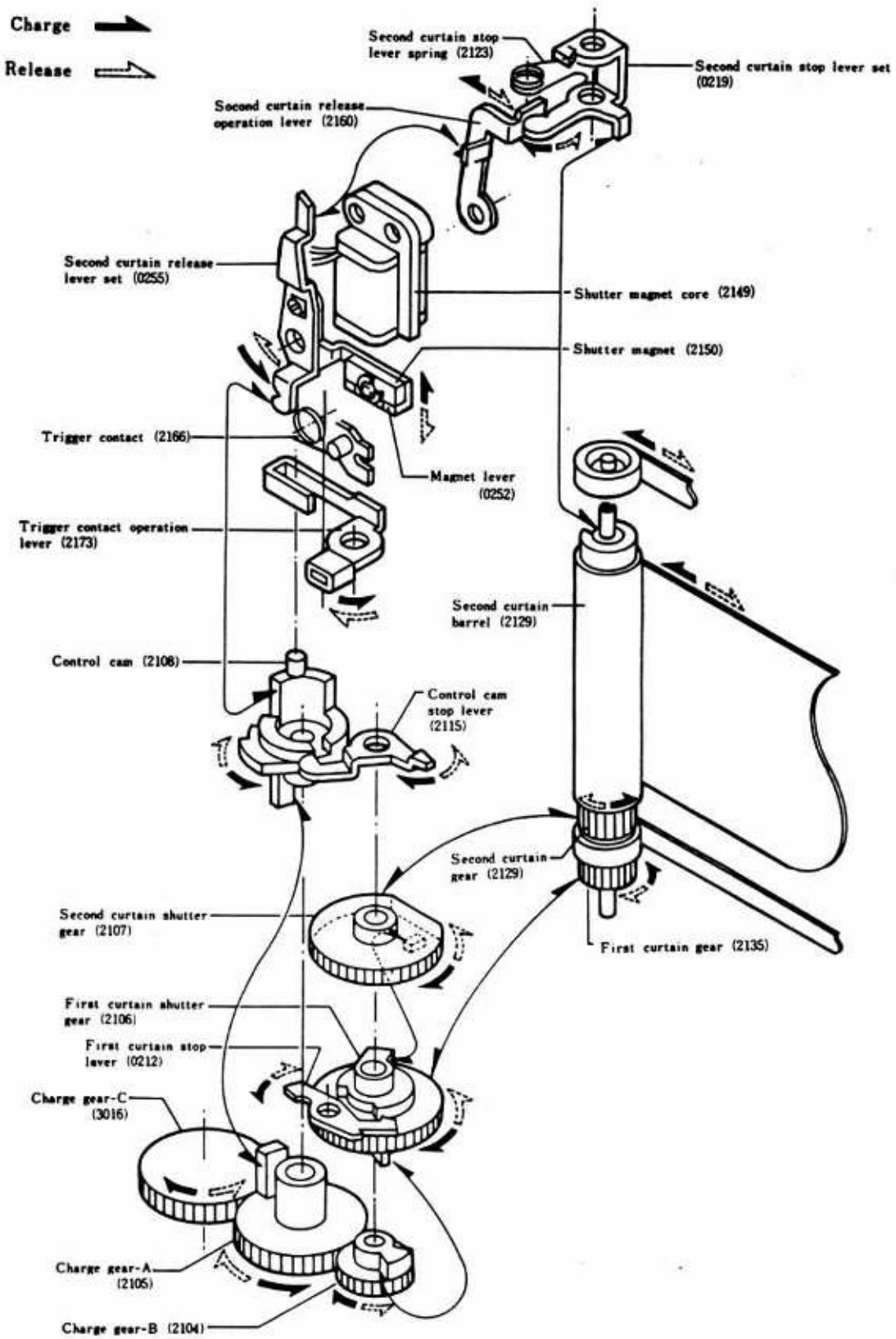
1. The shutter of XG employs only electric control for the shutter speed control and only "X" for the synchro mechanism, thus making its mechanism very compact.
2. The shutter curtain runs laterally and the curtain shaft employs a single shaft system. Also, an OFF-type trigger contact is used and all parts are set up into one unit.

A. Charge mechanism

1. Winding operation causes charge gear A (2105) being engaged with shutter charge gear C (3016) on body side to rotate in the direction of arrow.
2. As charge gear B (2104) being engaged with charge gear A (2015) rotates, first curtain shutter gear (2106) and second curtain shutter gear (2107) rotate in the direction of arrow.
3. First curtain gear (2135) and second curtain gear (2129) being engaged with first curtain shutter gear (2106) and second curtain shutter gear (2107) rotate in the direction of arrow, charging the 1st and 2nd curtains.
4. Oo the other hand, control cam (2108) is rotated for charge during rotation of charge gear A (2105) in the direction of arrow.
5. Operation of control cam (2108) in the direction of arrow causes first curtain stop lever (0212) to be released so that the stop lever can rotate by its spring strength in the direction of arrow to stop the first curtain shutter gear.
6. Further, control cam (2108) operates trigger contact operation lever (2173) in the direction of arrow to turn on trigger contact (2166) and operate second curtain release lever (0255) in the direction of arrow to press shutter magnet (2150) against shutter magnet core (2149).
7. Operation of second curtain release lever (0255) in the direction of arrow causes second curtain lever (2160) and second curtain stop lever (0219) to be operated in the direction of arrow by second curtain lever spring (2163) and second curtain stop lever spring (2123). Then second curtain stop lever (0219) is able to stop second curtain barrel.
8. First curtain shutter gear (2106) is stopped by first curtain stop lever (0212), control cam (2108) by control cam stop lever (2115) and second curtain barrel (2129) by second curtain stop lever (0219). Shutter magnet core (2149) is pressed against shutter magnet (2150) and then trigger contact (2166) is ON thus completing the charge.
9. When the winding lever has returned to the original position, charge gear A (2105) and B (2104) also return to the pre-charge positions, thus completing the preparations for release.

B. Release mechanism

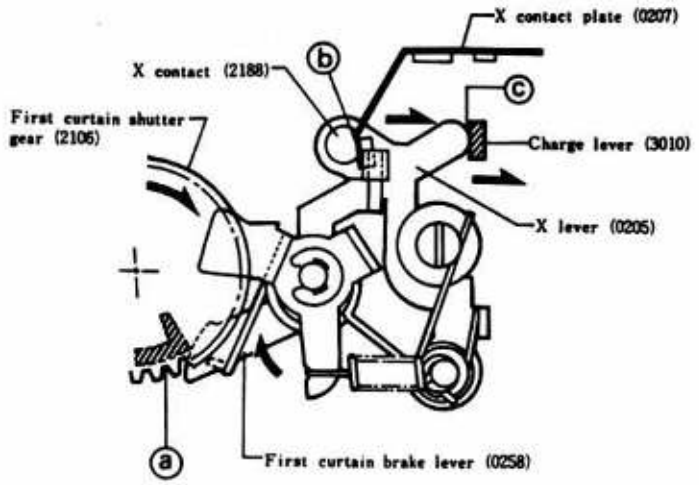
1. When the shutter button is operated, the preset interlocking lever on the mirror box side operates control cam stop lever (2115) in the direction of dashed line just before the end of operation of the mirror preset system, thus releasing control cam (2108).
2. Control cam (2108) is rotated in the direction of dashed line by the function of spring to operate first curtain stop lever (0212) in the direction of dashed line thus releasing it from first curtain shutter gear (2106), then it is rotated in the direction of dashed line by the function of the first curtain spring, allowing the first curtain to start running and exposure.
3. Oo completion of counting at the electric circuit, the current to the magnet is cut off. Shutter magnet core (2149) is released from shutter magnet, and magnet lever (0252) is operated in the direction of dashed line by the function of spring. Then second curtain release lever (0255), second curtain lever (2130) and second curtain stop lever (0219) are operated in the direction of dashed line in order, allowing the second curtain to start running to complete exposure.


Charge
Release
Second curtain stop lever spring (2123)
Second curtain stop lever set (0219)
Second curtain release operation lever (2160)
Second curtain release lever set (0255)
Shutter magnet core (2149)
Shutter magnet (2150)
Trigger contact (2166)
Magnet lever (0252)
Trigger contact operation lever (2173)
Second curtain barrel (2129)
Control cam (2108)
Control cam stop lever (2115)
Second curtain gear (2129)
Second curtain shutter gear (2107)
First curtain gear (2135)
First curtain shutter gear (2106)
First curtain stop lever (0212)
Charge gear-C (3016)
Charge gear-A (2105)
Charge gear-B (2104)

C. X contact mechanism

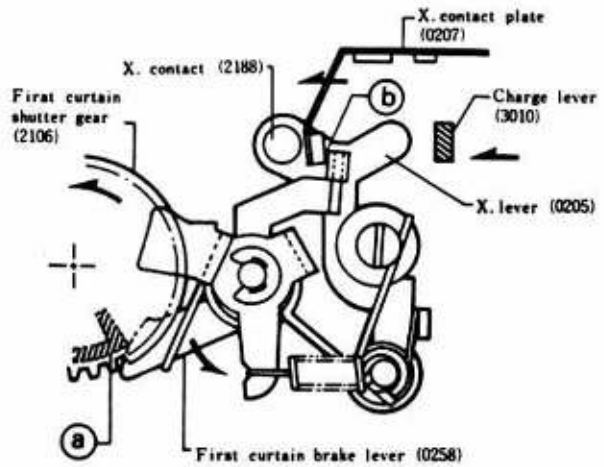
⟨Charge⟩

1. When first curtain shutter gear (2106) is rotated in the direction of arrow, first curtain brake lever (0258) having been pushed up at ⓐ is operated in the direction of arrow by spring, then X contact plate (0207) completes the preparation for operation.
2. On the other hand, operation of charge lever (3010) on body side in the direction of arrow causes X lever (0205) having been pushed at ⓒ to be operated in the direction of arrow by spring, then X contact (2188) also completes the preparation for operation.



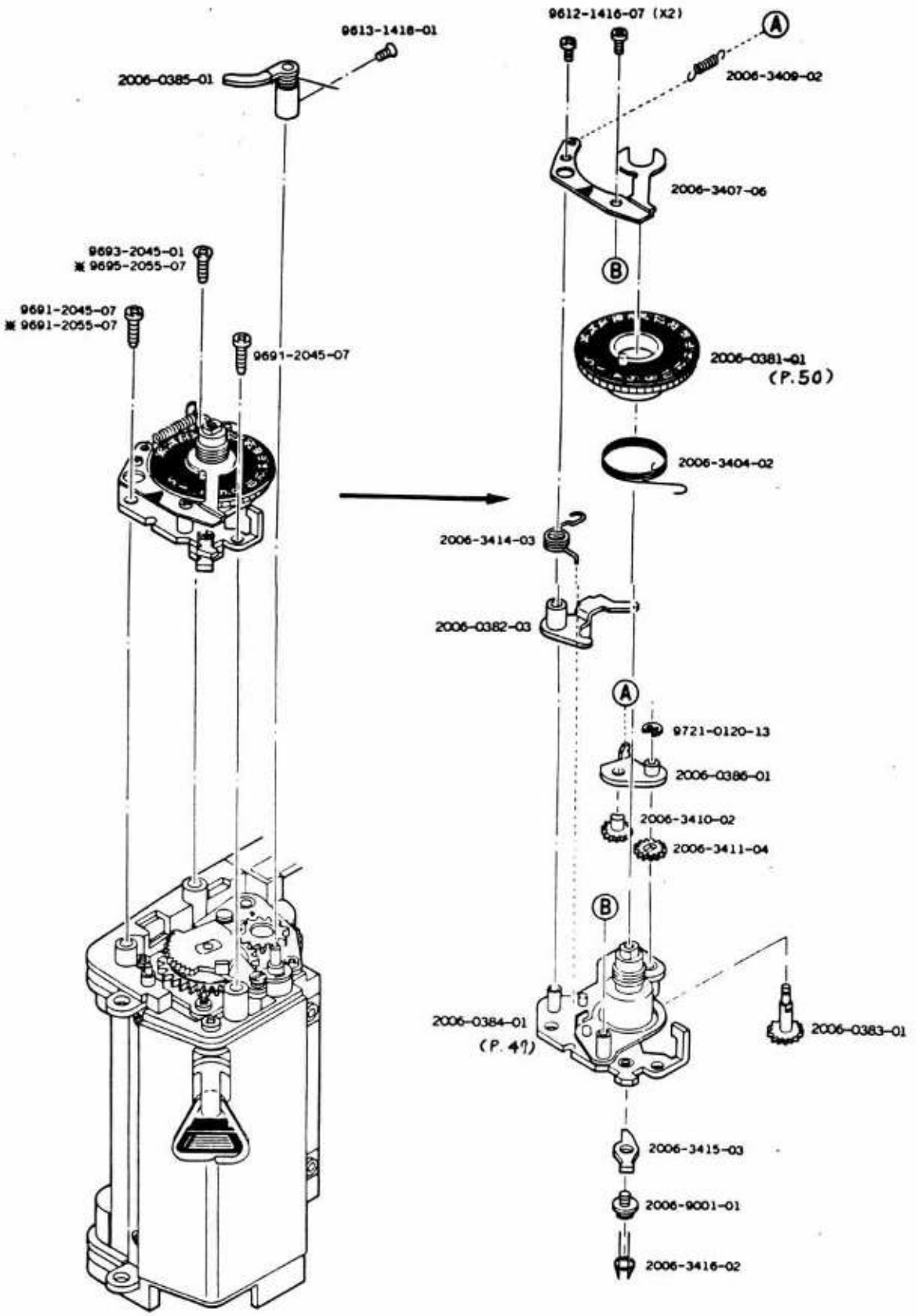
⟨Operation⟩

1. As the first curtain runs, first curtain shutter gear (2106) rotates in the direction of arrow and pushes first curtain brake lever (0258) at ⓐ of first curtain shutter gear (2106) just before the end of rotation (just before completion of 1st curtain running).
2. First curtain brake lever (0258) pushes X contact plate (0207) at ⓑ in the direction of arrow, then X contact (2188) and X contact plate (0207) are ON.
3. When the mirror return lever on the mirror box side has returned to the original position, body side charge lever (3010) operates in the direction of arrow to shift X lever (0205) in the direction of arrow, then X contact (2188) is separated from X contact plate (0207) to become OFF.



Part No.	Part Name		Qty
2006-0503-03	Mirror box set	ミラーボックスセット	1
2006-0521-02	Mirror operation lever set	ミラー操作レバーセット	1
2006-0558-02	Mirror holder set	ミラーホルダーセット	1
2006-0561-01	Operation lever-B base set (Right)	ミラー操作レバーB軸台セット(右)	1
2006-0562-01	Operation lever-B base set (Left)	ミラー操作レバーB軸台セット(左)	1
2006-5019-02	Mirror box apron	ミラーボックスエプロン	1
2006-5021-01	Mirror release lever	ミラーレリーズレバー	1
2006-5023-02	Release lever spring	ミラーレリーズレバースプリング	1
2006-5027-01	Flare shield plate (bottom)	フレアー防止シート（下側）	1
2006-5028-01	Flare shield plate (Left side)	フレアー防止シート（左側）	1
2006-5029-01	Flare shield plate (Right side)	フレアー防止シート（右側）	1
2006-5030-01	Flare shield support plate	フレアー防止シート補助板	1
2006-5110-01	Mirror support stopper-A	ミラー補助ストッパーA	1
2006-5111-01	Mirror stopper	ミラーストッパー	1
2006-5112-03	Mirror cushion	ミラークッション	1
2006-5113-02	Mirror support stopper-B	ミラー補助ストッパーB	1
2006-5114-01	Mirror cushion-B	ミラークッション B	1
2006-5116-05	Mirror operation lever-B	ミラー作動レバー	1
2006-5117-04	Mirror operation lever spring	ミラー操作レバースプリング	1
2006-5118-01	Mirror box light shield plate	ミラーボックス遮光片	1
2006-5119-01	Mirror stopper gum	ミラーストッパーゴム	1
2006-5806-02	Mirror	ミラー	1
2006-9106-01	Screw-C	特殊止めビスC	1
9611-1616-12	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1616-07	Phillips type screw	十字穴付なべ頭小ねじ	6
9721-0080-13	E-ring	E リング	1
9721-0150-13	E-ring	E リング	3
9794-3858-20	Washer	薄ワッシャー	1
2006-5033-81	Mirror box sheet	ミラーホルダー補助板	1
2006-5120-81	Mirror arm cushion	ミラーアームクッション	1

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



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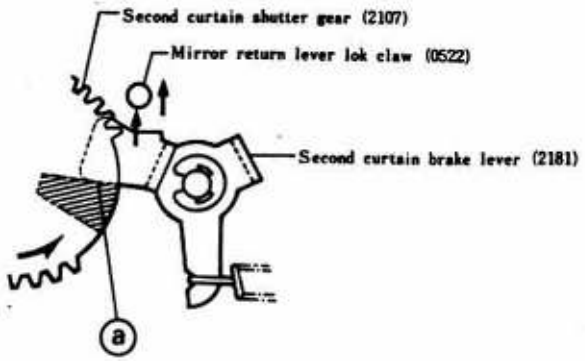
D. Mirror preset reset Mechanism

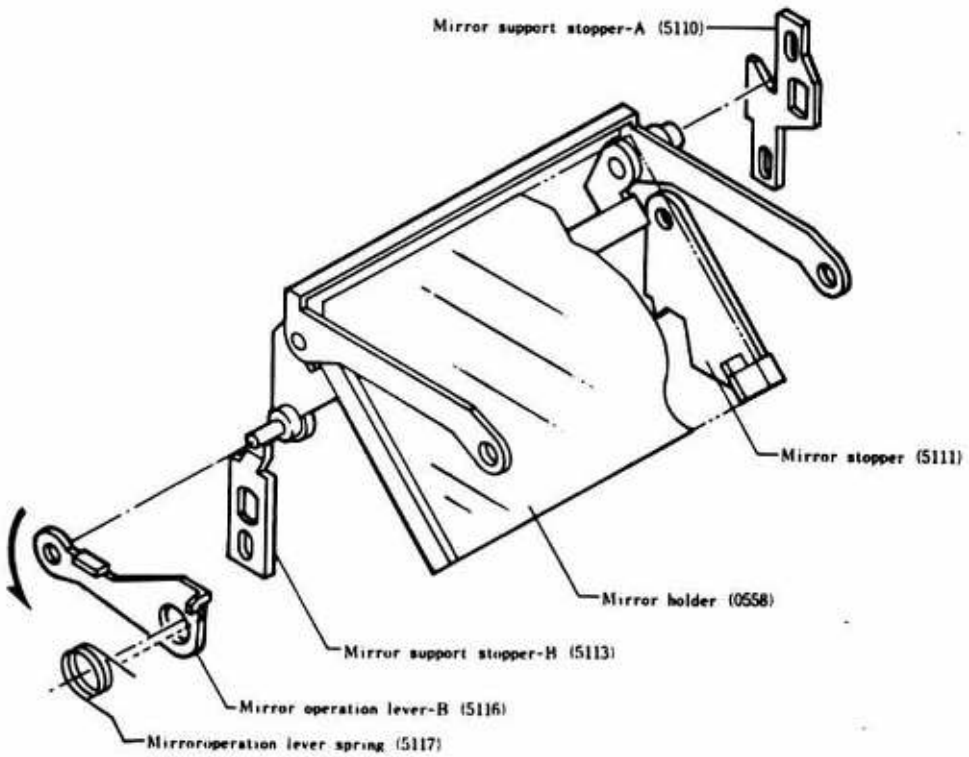
1. As the second curtain runs, second curtain shutter gear (2107) rotates in the direction of arrow and pushes second curtain brake lever (2181) at ⓐ of second curtain shutter gear (2107) just before the end of rotation (just before completion of 2nd curtain running).
2. Second curtain brake lever (2181) kicks mirror return lever lock claw (0522) on the mirror box side to reset the mirror preset system.



6. Mirror Box Mechanism

A. Mirror (45°) retaining mechanism

Mirror operation lever B (5116) is free before and after winding. It is pushed down by mirror operation lever spring (5117), then mirror holder (0550) being engaged with mirror operation lever (5116) is retained at 3 points of mirror stopper (5111), mirror support A (5110) and B (5113), thus keeping the mirror angle at 45°.



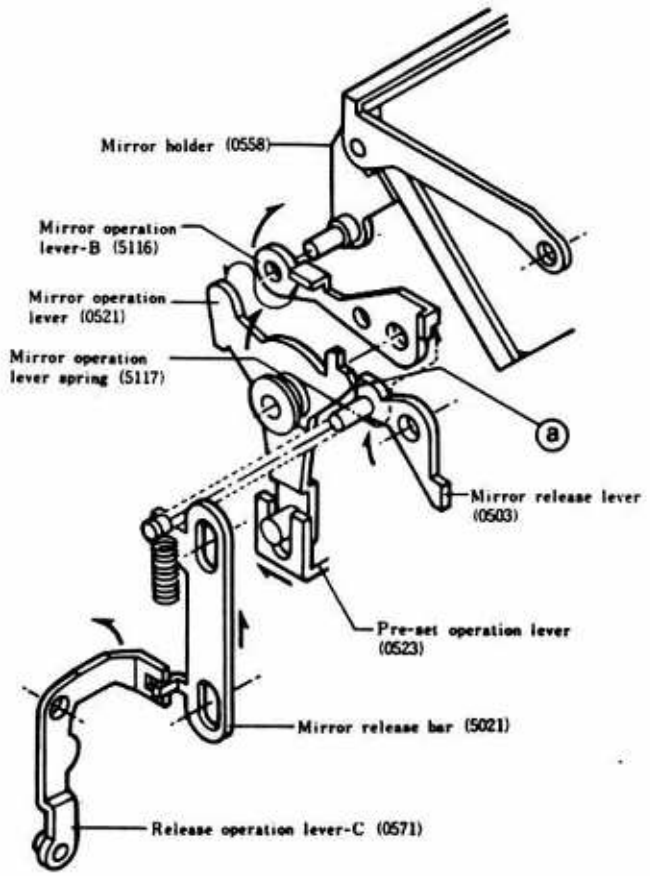
B. Mirror raising and lowering mechanism

⟨Raising⟩

1. Operation of release magnet causes mirror release bar (5021) being engaged with release operation lever C (0571) to operate in the direction of the arrow. Then it is disengaged from mirror operation lever (0521) at Ⓐ, and mirror-up spring (5042) moves preset operation lever (0523) and mirror operation lever (0521) in the direction of the arrow.
2. Operation of mirror operation lever (0521) causes mirror operation lever-B (5116) to operate in the direction of the arrow. Then mirror holder (0558) being engaged with mirror operation lever-B (5116) is raised.

⟨Lowering⟩

1. When the second curtain has completed running, preset operetion lever (0523) is returned in the direction opposite to the arrow, and mirror operation lever (0521) is also returned. Then mirror operation lever-B (5116) is returned by mirror operation lever spring (5117) along with mirror operation lever (0521), and then mirror holder (0558) is lowered.
2. On the other hand, the release magnet is returned on returning of preset operation lever (0523), then release operation lever-C (0571) is operated in the direction opposite to the arrow, and mirror release bar (5021) and mirror release lever (0503) are returned by spring, thus stopping mirror operation lever (0521).



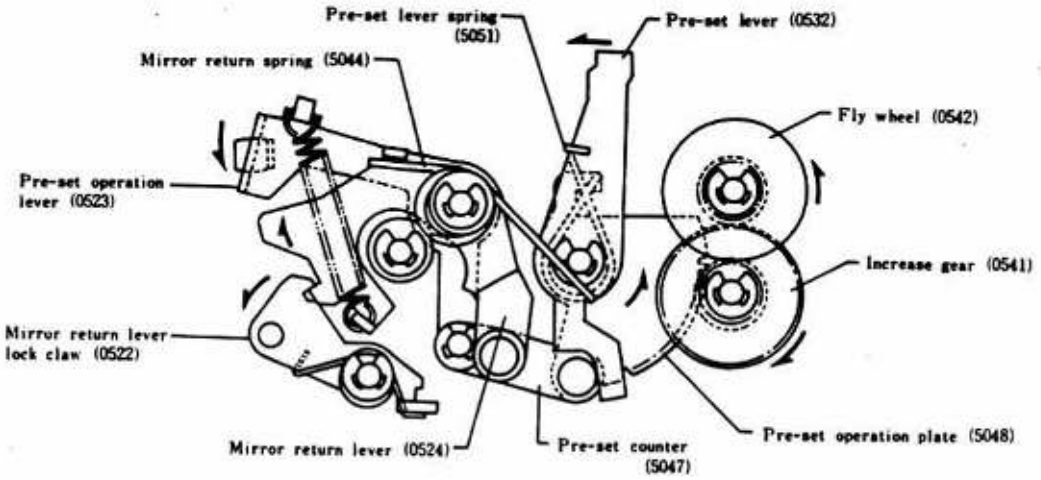
C. Preset mechanism

⟨Operation⟩

1. Operation of the release magnet causes preset operation lever (0523) to operate in the direction lever (0523) to operate in the direction of the arrow. Then preset lever (0532) and preset operation plate (5048) are operated in the direction of the arrow via preset connector (5047). Thus the mirror is raised at the same time with stopdown operation.
2. The rotation of preset operation plate (5048) is transmitted to flywheel (0542) via speed increase gear (0541), thus controlling the entire system.

⟨Returning⟩

1. On completion of the second curtain running, mirror return lever lock claw (0522) is kicked in the direction of the arrow, releasing it from mirror return lever (0524), and then preset operation lever (0523) is returned along with mirror return lever (0524) by the function of mirror return spring (5044), and also preset operation plate (5048) is returned via preset connector (5047), thus the mirror is lowered.
2. As preset connector (5047) operates, preset lever (0532) is returned by preset lever spring (5051) in the direction opposite to the arrow, then the diaphragm is released.



7. Principle of Metering and Description of Circuit

A. Outline

• Function

The electric circuit of XG has various functions as follows:

1) Automatic exposure control and shutter speed indication by LED.
2) Manual exposure control.
3) Shutter sec. time auto changeover and blinking indication by exclusive strobe.
4) Bulb exposure control.
5) Touch switch.
6) Magnetic release.
7) Electronic self-timer and blinking interval variable indicator circuit.
8) Voltage detection (incl. B. C)
9) Winder control.

• Composition

The circuit of XG is complicated having a lot of functions, and therefore solid-state construction is employed as much as possible for the circuit. It basically consists of two monosyllic ICs with 20 pins each for metering, operation, control (IC 1), and for indication (IC 2), one monosyllic IC with 10 pins mainly for self-timer (IC 3), and hybrid IC (HIC) for the purpose of connection between magnetic release and each circuit. To cope with such complicated wiring, a flexible circuit board is employed.

The switches are also transistorized as much as possible. Trigger switch, the representative one of mechanical switches, is of OFF type to minimize the influence of chattering. For the brushes of sliding resistors such as ASA resistor and diaphragm resistor, the number of brushes is increased in order to reduce noise. Also, 12 LED's are built into the indication board as indication elements.

B. General description

• Metering system

XG is a single-lens reflex camera using TTL metering system. And the amount of light to CdS is changed and shut off due to camera operations (such as auto exposure control and mirror operation).

It is therefore necessary for the camera to memorize the result of TTL metering (exposure time in XG) just before release.

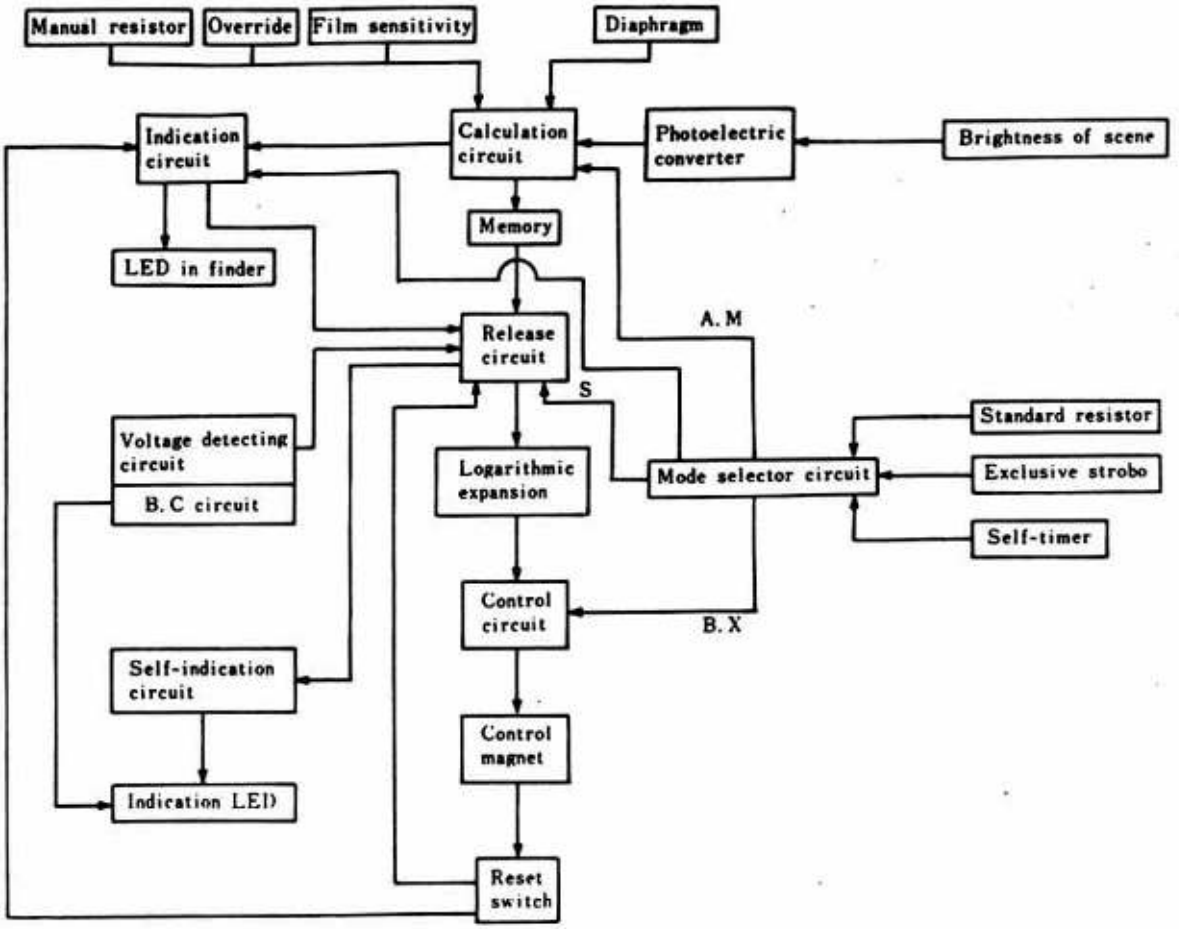
• Memory system

XG employs such a system that both in auto and manual the exposure time is converted into an electrical amount (voltage) and it is charged into a condenser and then the charge voltage is memorized by the camera. Also, the system is to memorize logarithmic values because the metering range and film sensitivity interlocking range are wide; interchangeability is required for lenses and parts, making the circuits complicated; and the range of memorized values (exposure time) is also very wide.

• Metering switch

In order to prevent wasting of the battery due to forgetting to turn off the metering switch, the metering switch is interlocked with the release button. A touch switch is installed to improve the maneuverability during metering. (A touch switch uses a part (finger) of the user's body as a switch contact. So, when the user wears gloves, the finger will not serve as a contact. In that case, pressing the shutter button by one step more will turn on the metering switch.

Each mode of XG is described in accordance with the block diagram.



• Automatic exposure control system

1. Metering system

In the auto exposure control system of XG, the film sensitivity, aperture, and exposure correction value are preset. The exposure time is automatically determined according to these values and the brightness of the scene to achieve the appropriate exposure. When metering switch (S_I or S_{II}) is turned on, the film sensitivity and exposure correction values are mechanically added, and the values are converted into resistances, making the rotating angle constant per step, and the aperture value is also converted into a resistance value (logarithmic operation). These electrical amounts (resistances) and the brightness of the scene are treated by the photoelectric converter consisting two CdS and resistors, and the resultant electrical amount (resistance) is put into the calculation circuit. [The converted value (brightness of scene) is subjected to logarithmic compression during calculation.]

The result of calculation is an electrical amount (voltage) corresponding to the exposure time, which is charged into condenser (C_1). Then, the exposure time is indicated in the finder by LED through the indication circuit.

The calculation in the above is as follows:

$$TV = (BV - AV_0) + SV - P$$

TV : Shutter speed
BV : Brightness of scene
AV_0 : Max. aperture value
SV : Film sensitivity
P : Number of steps for set aperture

2. Control system

The control system of XG is more complicated than that of XE because XG employs a system that the desired exposure is achieved when the shutter is released.

When release switch (S_2) is operated, the release circuit operates to check to see that the shutter sec. time is within the interlocking range. At the same time, the power source voltage is checked by the voltage detecting circuit. And only when the conditions are satisfactory, the release magnet is operated to start the mirror system. On operation of the release magnet, the memory circuit operates to store the voltage corresponding to the exposure time at that point into condenser (C_1) for memory. Even when the light to CdS is changed and shut off due to auto exposure control or mirror operation, the charge voltage already stored in the condenser will not be affected at all. As the operation is further performed, the first curtain starts running and the trigger switch operates in connection with the first curtain, then the control circuit operates to change the stored voltage into logarithmically expanded current. Condenser (C_2) is charged with the current, and when the charge voltage reaches a certain level, the current of shutter control magnet is cut off by the function of the control circuit, then the second curtain runs to complete the exposure. When the exposure is completed, the mirror system is reset and the winding stop is released. The circuit reset switch (S_4) being interlocked with the winding stop turns off to reset the release circuit.

The indication LED turns off with S_2 turned on. When the release button is kept depressed, LED turns on again with reset switch (S_4) OFF.

- Manual sec. time

When the speed dial is set to 1~1/1000 sec., the mode selector operates and the standard resistor is set instead of CdS, then the film sensitivity and override resistance are changed over to manual resistor. Also, the diaphragm resistor is released from the circuit and the power supply to the indication circuit is cut off, hence the indication LED does not light up.

When metering switch (S_1 or S_{11}) is turned on, the calculation is performed by the standard resistor and manual resistor, then voltage corresponding to the set sec. time is charged into condenser (C_1). Next, when release switch (S_2) is turned on, the power source voltage is checked by the voltage detecting circuit, then the release magnet is operated. The operations, after that, are the same as for the control system in auto mode.

When XG is used with manual sec. time, shutter sec. time is memorized. So, the shutter is controlled at the initially set speed even when the set speed is changed during shutter operation.

- Bulb mode

When the speed dial is set to "B", the mode selector operates to turn off the power source holding circuit, and power supply to the indication circuit is also cut off, then the indication LED does not light up. Next, when release switch (S_2) is turned on, t the power source voltage is checked by the voltage detecting circuit, and then the release magnet is operated. As the operation continues, the trigger switch operates, but the bulb is given priority by (S_3) over control circuit, therefore, the shutter control magnet keeps operating while the release button is depressed, then the second curtain is stopped. When the release button is returned to the original position, release switch (S_2) is turned off and the power source holding circuit is also off, therefore, the shutter control magnet turns off thus completing the exposure.

• Strobe auto

When the exclusive strobo has been completely charged, the mode selector circuit is shifted to Strobo Auto, then the signal from the strobo enters the indication circuit and control circuit; blinking indication of "60" is given by the indication circuit and the exposure at the strobo-tuned speed (1/60) is done by the control circuit when the shutter is released. (When the bulb is used, however, the auto changeover to the tuned speed is not performed by the function of the mode selector.)

Indication···When used in auto mode, auto sec. time is indicated until completion of charge, but the changeover operation of the mode selector causes the indication signal on the camera side to turn off, and then "60" is turned on and off by the signal on the strobo side. When used in manual mode, the indication is off, therefore the indication "60" is turned on and off by the signal on the strobo side on completion of strobo charging.

Speed auto changeover···When released on completion of strobo charging, the releasing magnet operates to start the first curtain. At that time, the control circuit instantaneously operates to turn off the control magnet with the strobe signal, but the control magnet is kept ON by the strobo signal. As the operation continues, the synchro switch turns on when the first curtain nearly completes its running, then the strobo flashes, the signal from the strobo to the control magnet stops, the control magnet turns off, then the second curtain runs and the mode selector also returns to the original position.

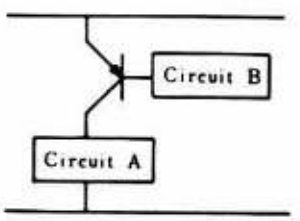
• Electronic SELF

When the SELF changeover switch is set to "SELF", the mode selector operates to change the composition of the release circuit to the circuit for self-timer.

When release switch (S_2) is operated, the selfcircuit operates and then LED for SELF operation indication (LED for B.C indication is used) blinks at constant intervals. After release switch operation, the release circuit operates 8~12 seconds later to release the shutter. Then the signal is given to the self indicator circuit by the release circuit (self circuit) 1/4 (about 2.5 sec.) before the total self-time length. The self-timer operation indicating LED then blinks at faster intervals, thus giving a previous notice for shutter release.

• Transistor switch

A conventional mechanical switch was operated by the movement of the release button or mirror, and the setting was maintained mechanically. Chattering was liable to occur when the switch turned on in particular. In the case of a transistorized switch, having a composition as illustrated below, the input (from circuit B) is electrically applied to the transistor to turn on and off. Also, the setting is retained by maintaining the input level. Since a transistor swith has no contact, it does not include mechanically operating parts and assures excellent durability being free from chattering.



C. Description of circuit

The circuit of XG is explained in accordance with the block diagram.

1. **Mode selector circuit**

This is the general name for circuits which select the mode in accordance with the switch operation or external signal (signal from strobo).

Auto mode: S_8, S_9, S_{10}·····A side S_5·····ON

Manual mode: S_8, S_9, S_{10}·····M side S_5·····ON

Bulb mode: S_8, S_9, S_{10}·····M side S_5·····OFF

Exclusive strobo mode:

On completion of strobo charge, the shutter speed control signal enters the control circuit and the "60" LED blinking indication signal enters the indication circuit respectively through the contact shoe.

Electronic SELF mode: S_6·····SELF side

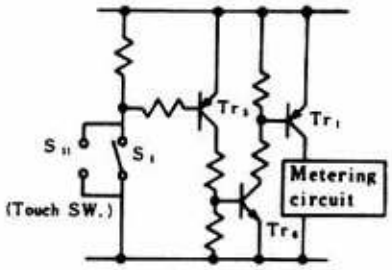
2. **Metering switch (Touch switch)**

The switch (S_1) operates when touch switch (S_{11}) and shutter button are lightly pressed (about 0.5 mm).

Touch switch (S_{11}):

The periphery and the center of shutter button are electrodes. When it is touched, the resistance between the electrodes decreases ($\infty \rightarrow$ several M ohms).

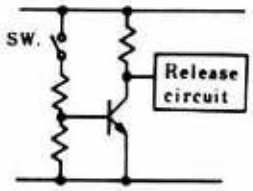
This is electrically detected Tr_5, Tr_6, and then Tr_1 operate) and then power is supplied to the metering circuit.



3. **Voltage detecting circuit**

If the power source voltage becomes lower than the specification during photography, Tr turns off and the release circuit stops working. The basic construction is as shown at left.

The B.C circuit is the same as this in principle of operation. It uses B.C indicating LED instead of release circuit.



4. **Metering operation circuit**

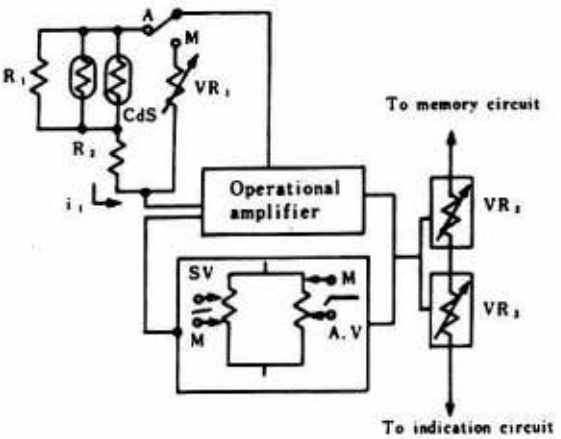
This circuit converts the change in brightness into the resistance of CdS, adds the aperture value and film sensitivity information, performs logarithmic compression, and puts out the signal to the indication circuit and memory circuit.

Auto Mode:

It consists of CdS and two resistors. Even if the resistance of CdS circuit changes (the brightness of the scene changes), the voltage applied to the circuit is kept constant by the operational amplifier, thus making the current (i_1) proportional to the brightness. The current (i_1), SV and AV information from the resistors are treated by the operational as voltage corresponding to the exposure time. The voltage is applied to the memory circuit and indication circuit through the level shift circuit (including VR_2, VR_3).

Manual Mode:

When the mode is shifted to Manual, CdS circuit is switched to standard resistor (VR_1) to make current (i) constant. Also, the brush of SV resistor is switched to that of TV resistor (resistor is used). Therefore, the output to the memory circuit varies in accordance with the position of the brush for TV resistor.

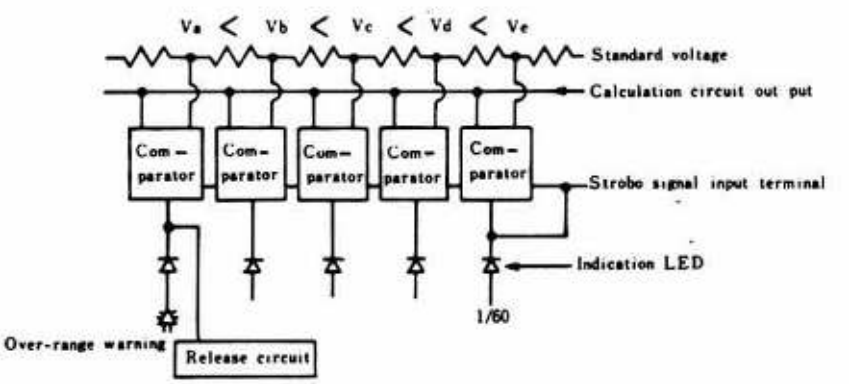


5. Indication circuit

The indication circuit is a combination of comparators, which compares the output of calculation circuit and the standard voltage created in the indication circuit. When the values are close to each other, the corresponding LED is lighted. When the output of calculation circuit is between standard voltages intermediate range), two LED's are lighted.

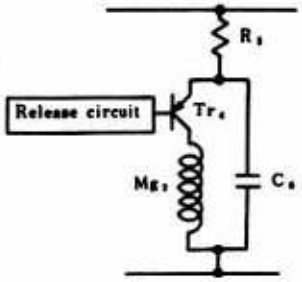
The output of calculation circuit is compared with the standard voltage by comparators in the indication circuit (IC 2). When the values are close to each other, the corresponding LED is lighted. When the value is in an intermediate range, the outputs are given from two comparators to two LED's to turn them on at the same time.

When the over-range warning LED is lighted the over-range lock signal is given to the release circuit to lock the release. Also, when the signal for charge completion is emitted from exclusive strobo (8668), the comparator is turned off (LED OFF), then LED "60" is turned on end off by the signal.



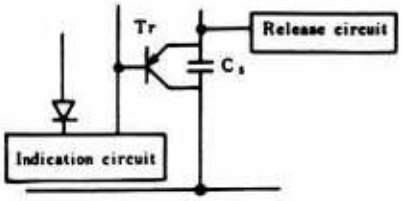
6. Magnetic release

With the contact piece attracted by the permanent magnet, the permanent magnet is temporarily demagnetized. Then the contact piece operates to release the mirror box. Condenser C_4 is charged through R_3 beforehand. When Tr_4 in operated by the release circuit, condenser C_4 serves to create a magnetic field, opposite to that of the permanent magnet, on the magnets provided around the permanent magnet. Then the permanent magnet is temporarily demagnetized thus releasing the contact piece.



7. Over-rang lock

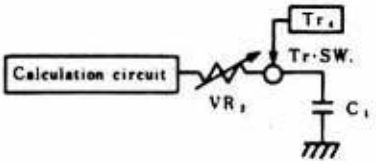
When release switch (S_2) is turned ON, C_3 is charged at a high speed, and the release circuit operates on completion of charge. In the case of over-range non-interlocking operation, C_3 is discharged not to operate the release circuit. When over-range LED is lighted in the indication circuit, Tr operates as well and C_3 is shortcircuited at both ends. Therefore, C_3 will not be discharged and the release circuit will not work.



8. Memory circuit

This circuit stores the output of calculation circuit into condenser (C_1) through VR_2 and Tr switch.

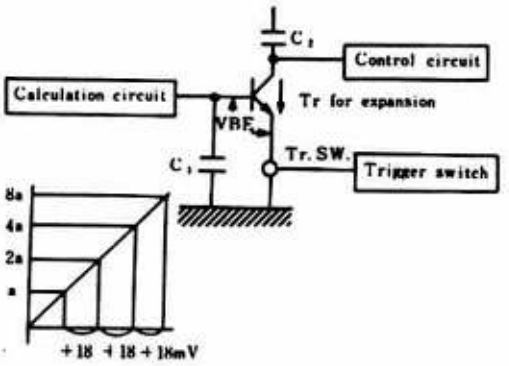
The calculation circuit output (voltage corresponding to shutter speed) is charged into condenser (C_1) through VR_2 and Tr SW. But Tr SW. is turned OFF when Tr_4 is turned ON. and the calculation circuit is isolated from condenser (C_1). Then the shutter speed is memorized.



9. Logarithmic expansion circuit

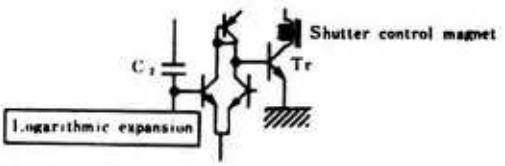
The memorized voltage cannot be used as it is because it has been logarithmically compressed. It must be changed to the original value. (This is called "logarithmic expansion".)

When the first curtain runs and trigger switch (S_3) turns off, Tr SW. is activated to operate Tr for expansion. The size of current (IC) flowing in Tr for expansion varies depending on the voltage charge in C_1. When the charge voltage of C_1 is increased by 18 mV, the current is doubled (characteristic of Tr). Also, C_2 is charged by the current flowing in Tr for expansion, and when the charge voltage reaches a certain level, the control circuit operates causing the second curtain to run.



10. Control circuit

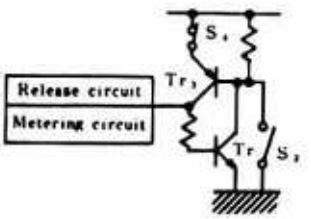
In the logarithmic expansion circuit, condenser (C_2) for time constant is charged by the current subjected to logarithmic expansion. The shutter speed is controlled by the charge voltage. When C_2 has been charged up to a certain level, the comparator operates to turn off Tr, and then the shutter control magnet is turned OFF. Then the second curtain is released to start running.



11. Power source holding circuit

This circuit holds the power source until the end of shutter operation even when the release switch is turned off during operation of the camera.

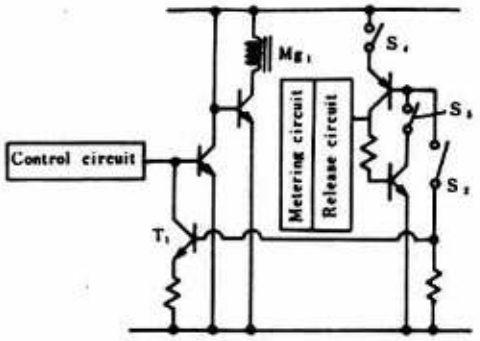
When release switch (S_2) is turned ON, Tr operates to supply power to the release circuit and metering circuit, starting up each part. When release switch (S_2) is turned OFF, power source is held by the function of Tr, the same as with S_2 ON. With release completed, the set lever returns and circuit reset switch (S_4) is turned OFF, then the power holding circuit is also reset.



12. Bulb mode

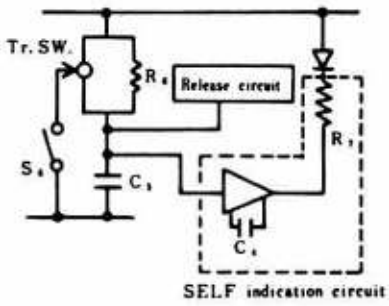
A bulb switch (S_3) is installed in the power source holding circuit. On turning off of the holding circuit, priority is given to "B" over the control circuit. And second curtain release is done by release switch (S_2).

When the shutter speed dial is set to "B", bulb switch (S_3) is turned OFF and the metering operation circuit is shifted to Manual. Next, when release switch (S_2) is turned ON, the voltage is detected to operate the release circuit, and the shutter opens. While release switch (S_2) is ON, T_1 operates and Mg_1 is ON (open). When release switch (S_2) turns off, power supply to the control circuit is cut off because the power source holding circuit is OFF. Then the shutter control magnet (Mg_1) turns off and the second curtain starts running.



13. Magnetic SELF

For ordinary photography, the release circuit is operated as C_5 is charged (high speed). The circuit composition and the shutter speed have been changed in this self-timer. When the mode selector switch is set to "Selftimer", the self switch (S_4) turns ON and Tr switch turns OFF. Next, when release switch (S_2) is turned on, C_5 is charged through C_4. And the release circuit operates 8~12 seconds later to activate the release magnet to operate the shutter. The indication LED blinks by the function of the SELF indication circuit consisting of C_4 and resistors in series. When the charge voltage of C_5 has reached a certain level, the composition of indication circuit changes causing the blinking intervals of LED to become faster.



14. Remote-control

In ordinary photography, metering switch (S_1 or S_{11}) turns ON and release switch (S_2) turns ON and then the shutter is operated. In remote control operation, the metering switch does not turn ON, therefore power is supplied to the metering circuit after release switch (S_2) is turned ON.

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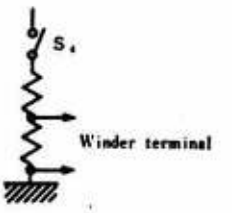
15. Winder control function

Unlike XD, XG is not furnished with a winder switch but provided with the signal from the reset switch (S_4) for the purpose of winder control. The winder operates when the winder terminal voltage is zero, and it stops when voltage exists.

The winder terminal voltage is 2V with S_4 ON, and 0V with the switch OFF. Also, S_4 is ON with winding completed, and OFF with shutter release completed.

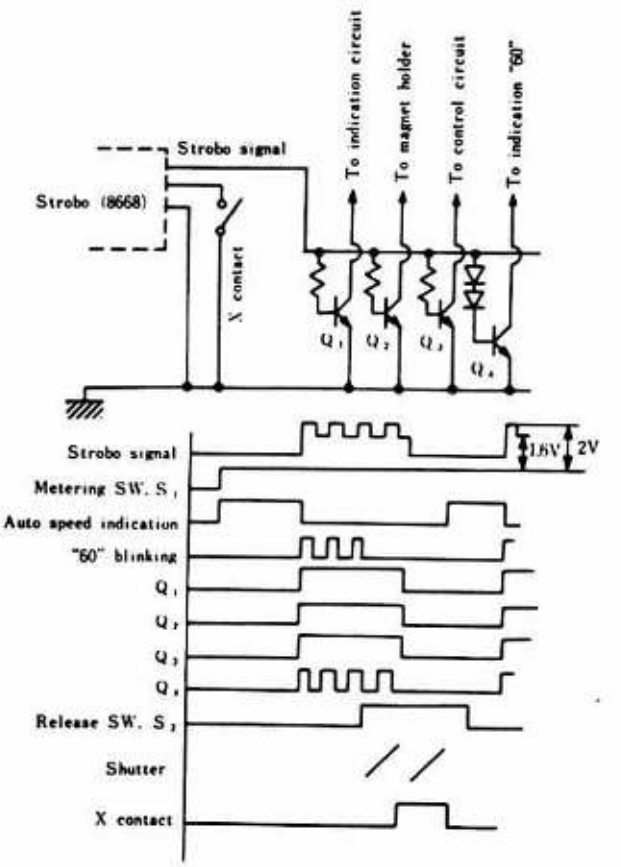


16. Strobo Auto

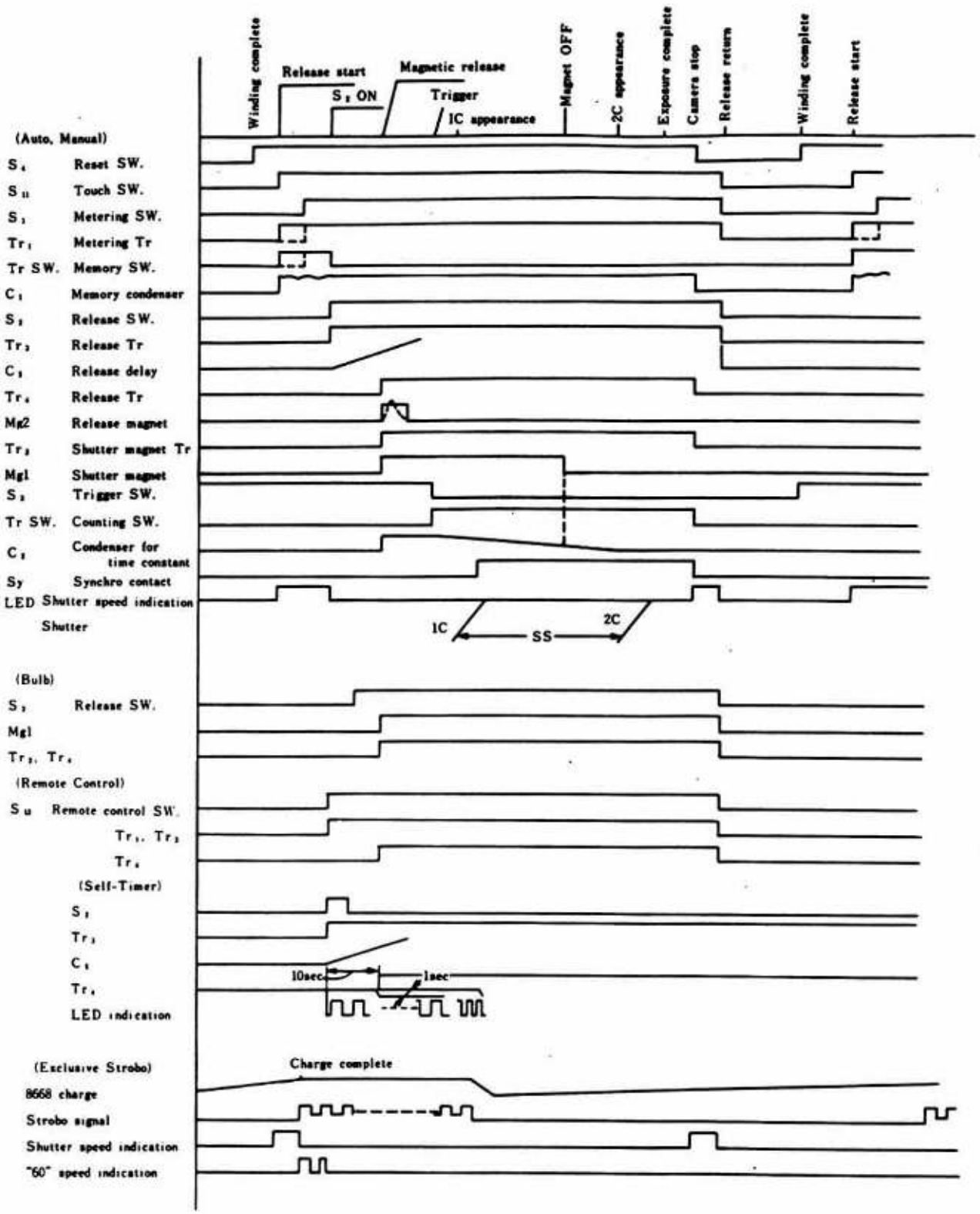
The circuit receives the signal of stobo (8668) and indicates for strobo charge completion in the finder and changes the shutter speed to the strobo-tuned speed.

When the charge of strobo has been completed, pulse signal enters the signal contact on the camera side from the signal contact on the strobo side. The pulse operates Q_1 ~Q_3. Q_1 turns off the indication circuit, Q_2 holds the magnet, and Q_3 charge the condenser (C_3) for time constant in the control circuit at a high speed (approx. 1/1000 sec.). Also, Q_4 operates at 2V and doesn't at 1.6V. Therefore, indication LED ("60") turns on and off.

When the shutter is operated and X contact is closed, the strobo flashes and the strobo signal goes out. Then Q_2 which held the magnet is turned off and the second curtain starts running, thus completing the exposure.



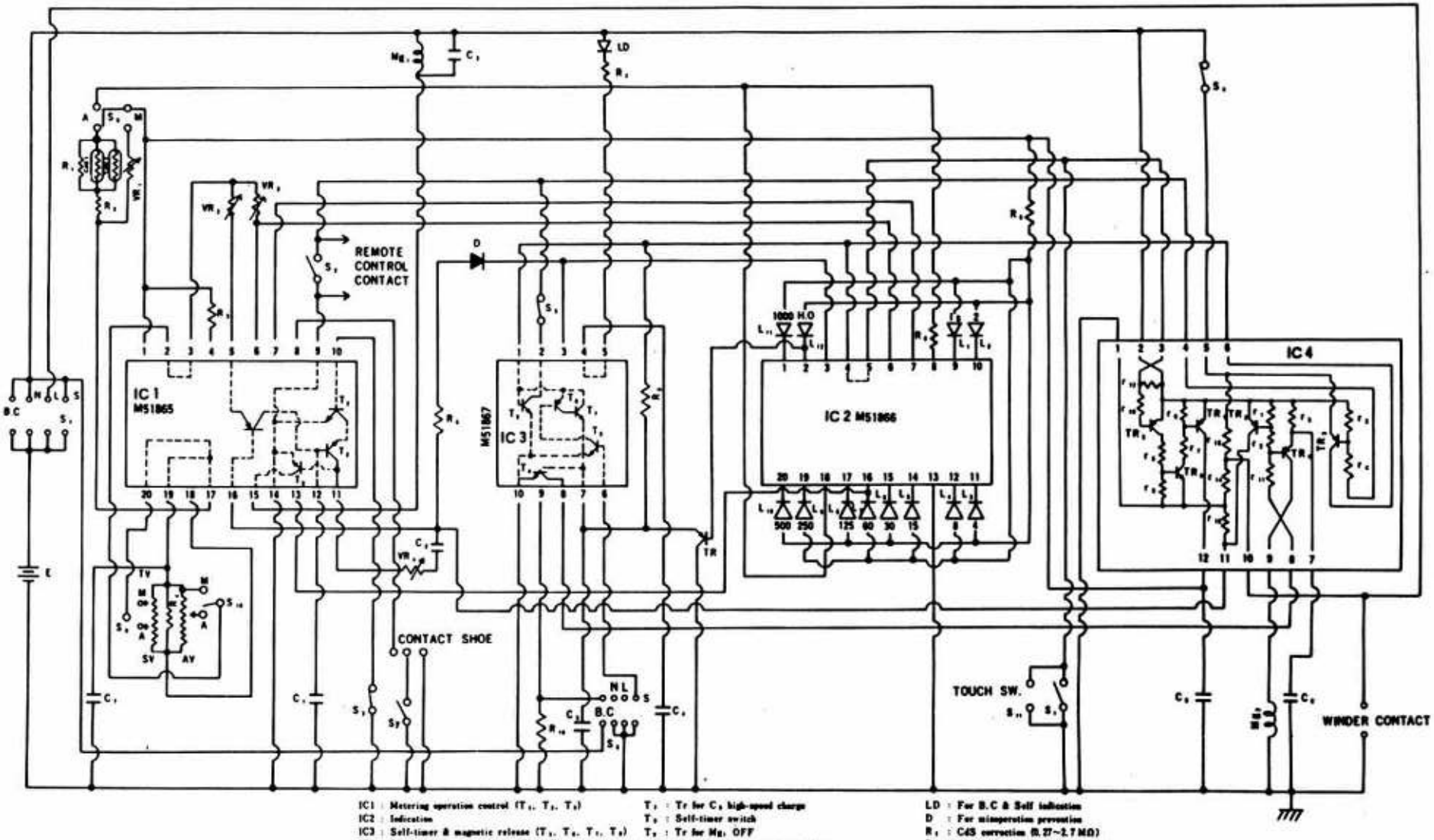
17. XG Time Chart



D. Switch characteristics

Mark	Name	Function	Operation	Before release	During exposure	After exposure
S_1	Metering switch	Turns on metering operation circuit to start metering, and indicates shutter sec. time in finder in AUTO mode.	Interlocked with shutter release shaft	(OFF)	(ON)	(OFF)
S_2	Release switch	Starts operating each circuit.	Interlocked with shutter release.	(OFF)	(ON)	(OFF)
S_3	Trigger switch	Starts time counting in Manual and Auto.	Turns OFF just after start of 1st curtain (Sutter block)	ON	OFF	ON
S_4	Reset switch	Prevention of misoperation during winding, circuit resetting, and winder control.	Turns ON on completion of winding. Winder operates at OFF.	ON	ON	OFF
S_5	Bulb switch	Circuit is shifted for Bulb.	Interlocked with speed dial. (OFF at Bulb)			
S_6, S_7	Mode switch		Interlocked with selftimer dial.			
	B.C	Checks battery				
	ON	Supplies power to metering switch.				
	OFF	Cuts off power to circuit.				
	SELF-TIMER	Circuit is shifted for self-timer.				
S_8	Auto-Manual switch	Circuit changeover for Auto & Manual.	CdS circuit OFF at Manual			
S_9			TV (Speed) circuit ON at Manual.			
S_9			SV (ASA) circuit OFF at Manual.			
S_{10}			AV (Diaphragm) circuit at Manual.			
S_{11}	Touch switch	Same as S_1	ON with shutter button touched.			
Sy	Synchro switch	Strobo operation	Turns ON on completion of 1st curtain running, and OFF on completion of 2nd curtain running.	OFF	ON	OFF

Circuit diagram



IC1 : Metering operation control (T_1, T_2, T_3)
IC2 : Indication
IC3 : Self-timer & magnetic release (T_4, T_5, T_6, T_7)
IC4 : Switch & magnetic release (Hybrid)
T_1 : Memory switch
T_2 : Counting start switch
T_3 : Tr for expansion
T_4 : For release lock at voltage drop
T_5 : Tr for power source holding
T_6 : Tr for C_2 high-speed charge
VR_1 : For Manual SS adjustment (300 KΩ)
VR_2 : For Auto SS adjustment (15 KΩ)
VR_3 : For indication level adjustment (15 KΩ)
[illegible] : For 1/1000 sec. adjustment (1.5 KΩ)

T_7 : Tr for C_2 high-speed charge
T_8 : Self-timer switch
T_9 : Tr for Mg. OFF
Tr : Tr for over-range non-interlocking
C_1 : For memory (1.5 μF)
C_2 : For time constant (0.68 μF)
C_3 : For delay time stabilization (0.05 μF)
C_4 : For self-oscillation (22 μF)
C_5 : For self-timer & release delay (47 μF)
C_6 : For magnetic release (100 μF)
C_7 : For oscillation prevention (1.5 μF)
C_8 : For misoperation prevention (33 μF)
Mg_1 : For 2 nd curtain stop
Mg_2 : For magnetic release

LD : For B.C & Self indication
D : For misoperation prevention
R_1 : CdS correction (0.27~2.7 MΩ)
R_2 : CdS correction (0.22~1.8 KΩ)
R_3 : Level correction (10 KΩ)
R_4 : 180 mV adjustment (18~390 KΩ)
R_5 : Oscillation prevention (100 KΩ)
R_6 : For Self-timer time constant (270 KΩ)
R_7 : For LD 13 current control (68 Ω)
R_8 : For indication adjustment (1.6~3 KΩ)
R_9 : For LD 1~LD 12 current control (300 Ω)
R_{10} : For B.C current addition (240 Ω)

XG 7 (2006-100, -200)
XG 2 (2006-300, -400) Parts List
XG-E (2006-500, -600)

1. This parts list, based upon the final model of 2006 series, includes ① parts modified or discontinued in the course of production and temporarily used, and their interchangeability; ② parts for models after 2006 series, which can also be used for 2006 series.

   • Regarding those modified in the course of production, if they are interchangeable, only the new parts are mentioned.

2. Part No. on the exploded view of the parts list is sometimes provided with ●, ◉, or ※.

   ● : Modified in the course of production, and individually not interchangeable with previous type.
   ◉ : Discontinued in the course of production, newly added or temporarily used.
   ※ : Attached to screws or special screw numbers, showing the use for defective screw hole.

   Regarding those provided with ● or ◉, be sure to refer to the specified page. Also, do not remove the part from the dody to which the ◉-marked part is attached.

1. このパーツリストは2006系の最終モデルを基本に，①生産途中で変更，廃止，或いは一時的に使用された部品の記載及び，互換性の明示。②2006系以降のモデル用部品で，2006系にも使用できる部品の明示。以上①，②の内容を加えてまとめてあります。

   • 生産途中で変更された部品でも互換性がある場合は，新しい部品のみを記載しています。

2. パーツリストの展開図側の部品番号には●，◉又は※の印がついている場合があります。

   ●印：生産途中で変更され，その部品単独では旧タイプとの互換性がないもの。
   ◉印：生産途中に廃止，新設，又は一時的に使用された部品。
   ※印：ねじ，又は特殊ねじの番号につけられ，ねじ穴不良対策用を示しています。

   ●印や◉印のついている部品については必ず指示されたページの説明を参照して下さい。又，◉印の部品がつけられているボデーからは，その部品は原則として取外さないで下さい。

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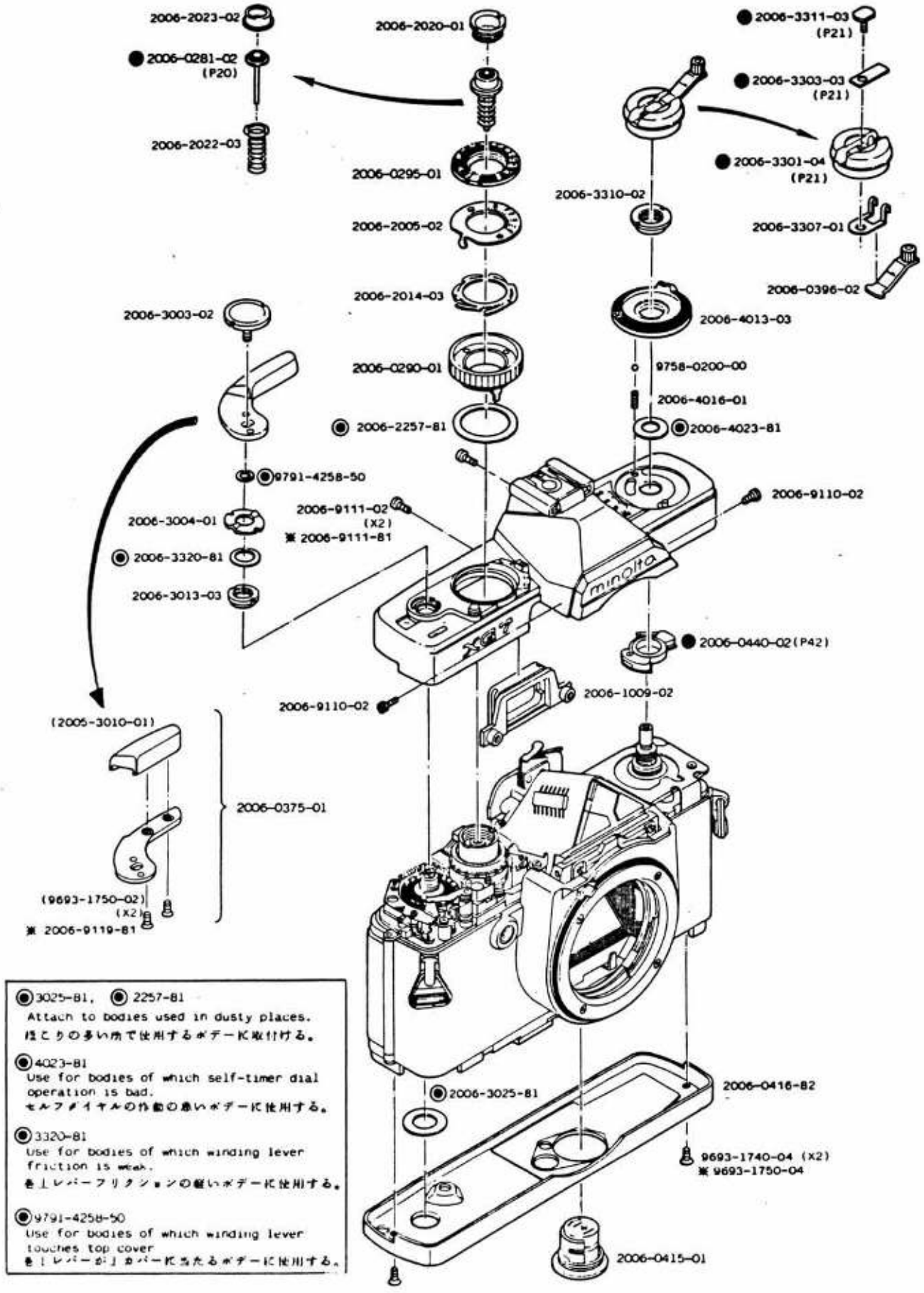

◉ 3025-81, ◉ 2257-81
Attach to bodies used in dusty places.
埃とりの多い所で使用するボデーに取付ける。

◉ 4023-81
Use for bodies of which self-timer dial operation is bad.
セルフダイヤルの作動の悪いボデーに使用する。

◉ 3320-81
Use for bodies of which winding lever friction is weak.
巻上レバーフリクションの軽いボデーに使用する。

◉ 9791-4258-50
Use for bodies of which winding lever touches top cover
巻上レバーがトップカバーに当たるボデーに使用する。

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2006-0281-02	Shutter release button set	シャッター釦セット	1
2006-0290-01	Shutter speed dial/Function selector	シャッターダイヤルセット	1
2006-0295-01	Shutter speed dial	シャッターダイヤル銘板	1
2006-0375-01	Winding lever set	巻上レバーセット	1
(2005-3010-01)	Winding lever knob	巻上レバー指当て	1
(9693-1750-02)	Phillips type tapping screw	十字穴付タッピンねじ	2
2006-0396-01	Rewinding handle set	巻戻しハンドルセット	1
2006-0415-01	Battery holder set	電池ホルダーセット	1
2006-0416-01	Bottom cover set	下カバーセット	1
2006-0440-02	Self-timer change holder set	セルフ切換接片ホルダーセット	1
2006-1009-02	Eye-piece lens frame	接眼枠	1
2006-2005-01	ASA dial	ASA 銘板	1
2006-2014-03	ASA spring	ASA スプリング	1
2006-2020-01	Shutter release button pressure	シャッター釦押え	1
2006-2022-03	Shutter release button spring	シャッター釦スプリング	1
2006-2023-02	Shutter release button cap	シャッター釦キャップ	1
2006-3003-02	Winding lever pressure	巻上レバー押え	1
2006-3004-01	Winding lever friction	巻上レバーフリクション	1
2006-3013-03	Top cover set nut B	上カバー止めナットB	1
2006-3301-04	Rewinding knob	巻戻しノブ	1
2006-3303-03	Rewindng handle spring	巻戻しハンドルバネ	1
2006-3307-01	Rewinding handle receiver	巻戻しハンドル受け	1
2006-3310-02	Top cover pressure nut	上カバー押えナット	1
2006-3311-02	Rewinding knob screw	巻戻しノブビス	1
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2006-4016-01	Self-timer dial click spring	セルフダイヤルクリックSP	1
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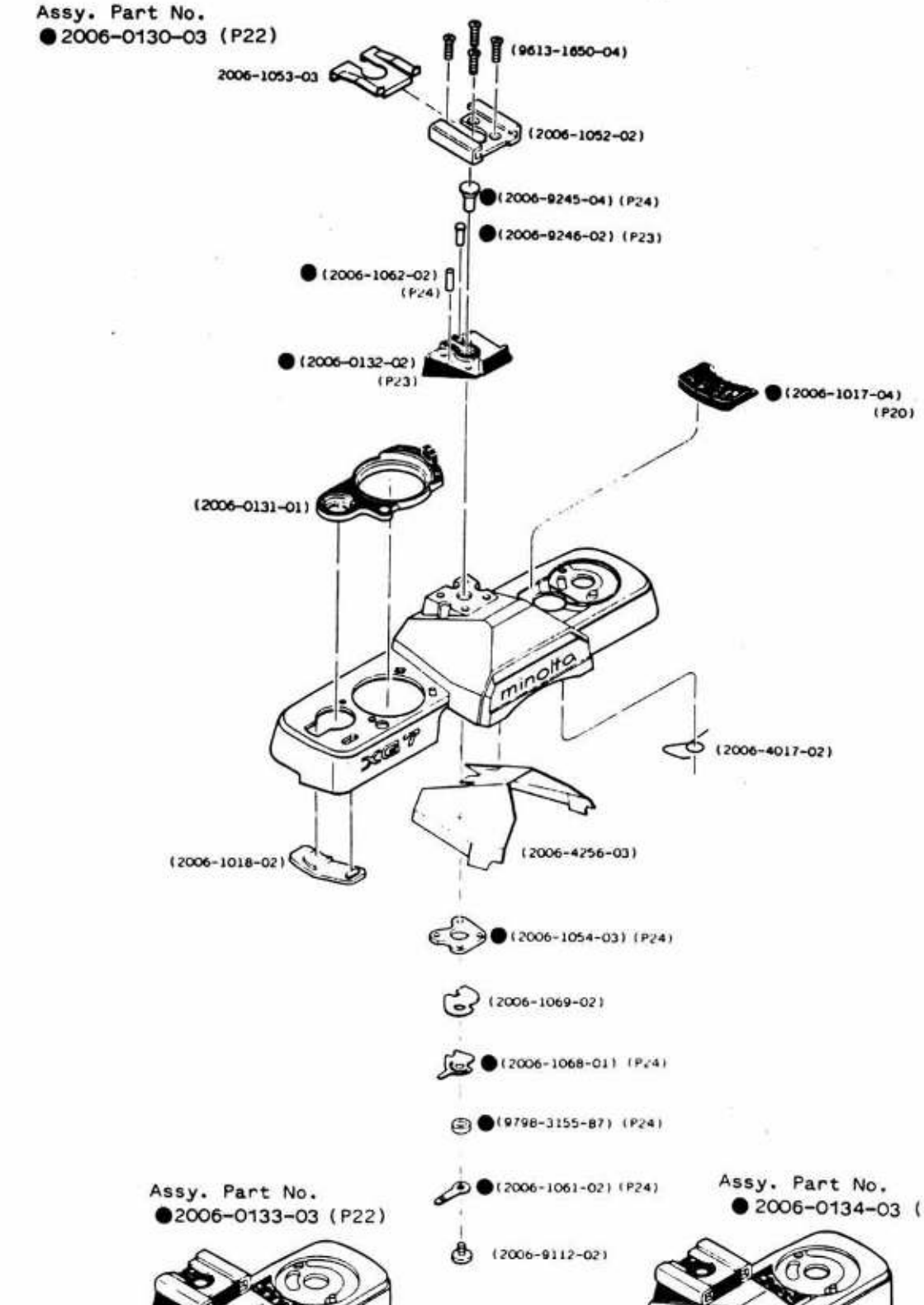
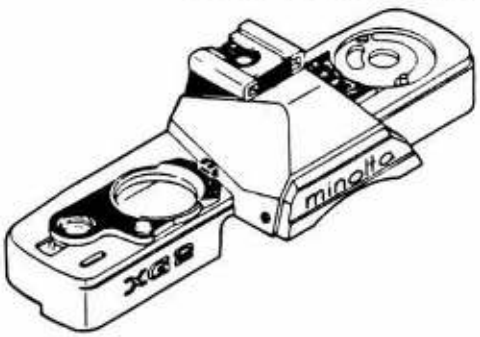
2006-9119-81	Tapping screw		0-2
9693-1740-04	Phillips type tapping screw	十字穴付タッピンねじ	2
9758-0200-00	Steel ball	スチールボール	1
2006-2257-81	Washer	防塵ワッシャーA	1
2006-3025-81	Washer	防塵ワッシャーB	1
2006-3320-81	Washer	巻上レバー補正ワッシャー	1
2006-4023-81	Self dial space washer	セルフダイヤル間紙	1
9791-4258-50	Washer	薄ワッシャー	1

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600

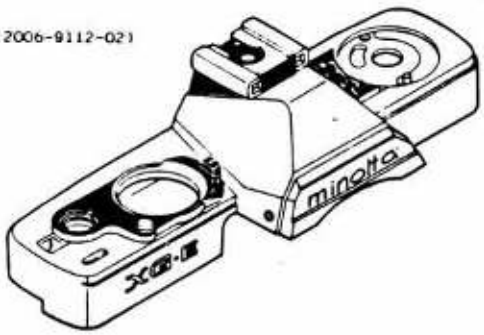
Assy. Part No.
● 2006-0130-03 (P22)



Assy. Part No.
● 2006-0133-03 (P22)

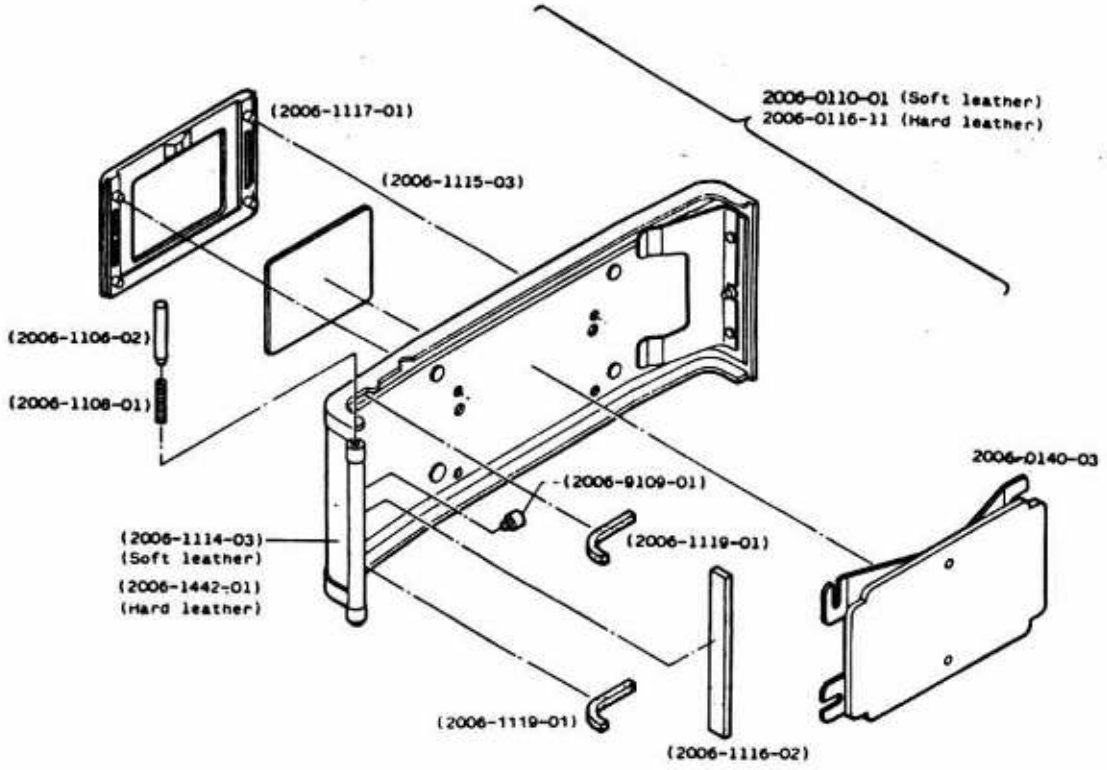


Assy. Part No.
● 2006-0134-03 (P22)



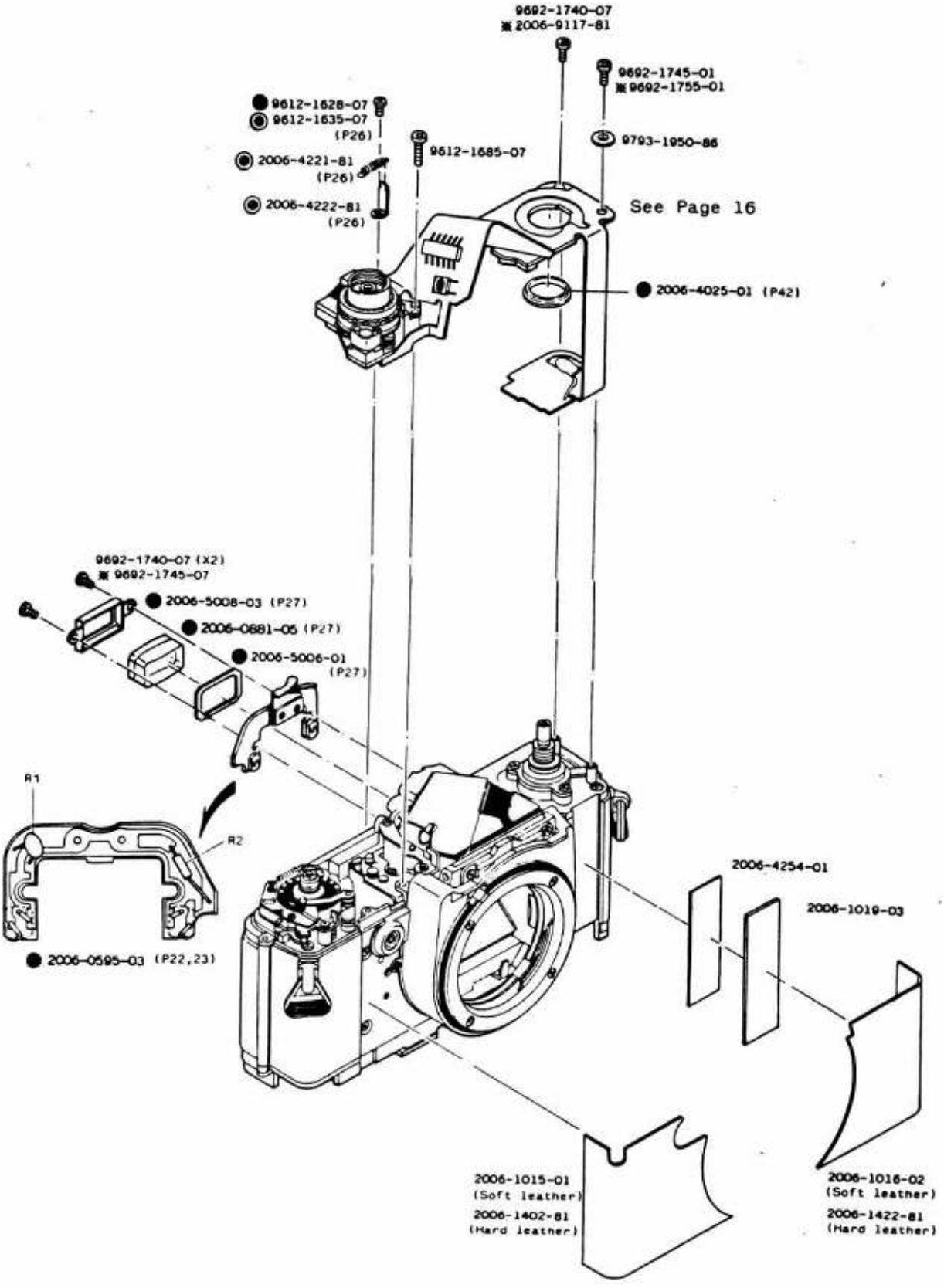
Part No.	Part Name		Qty
2006-0130-03	Top cover set for XG 7	XG 7用上カバーセット	1
2006-0133-03	Top cover set for XG 2	XG 2用上カバーセット	1
2006-0134-03	Top cover set for XG-E	XG-E用上カバーセット	1
(2006-0131-01)	Shutter speed dial set	シャッターダイヤルハカマセット	1
(2006-0132-02)	Accessory shoe base set	アクセサリーシュー座セット	1
(2006-1017-04)	Self-timer indication plate	セルフ指標板	1
(2006-1018-02)	Counter window	カウンター窓	1
(2006-1052-02)	Accessory shoe	アクセサリーシュー	1
(2006-1054-03)	Accessory shoe set plate	アクセサリーシュー取付板	1
(2006-1061-02)	Contact-D	コンタクト接片D	1
(2006-1062-02)	Contact operation pin	コンタクト接片連動ピン	1
(2006-1068-01)	Contact-E	コンタクト接片 E	1
(2006-1069-02)	Contact isolation sheet	コンタクト絶縁シート	1
(2006-4017-02)	Self-timer return spring-B	セルフダイヤル戻しSP-B	1
(2006-4256-03)	Top cover isolation tape	上カバー絶縁シート	1
(2006-9112-02)	Contact pressure screw	コンタクト接片押えビス	1
(2006-9245-04)	Contact-A	コンタクト接点A	1
(2006-9246-02)	Contact-B	コンタクト接点B	1
(9613-1650-04)	Phillips type screw	十字穴付皿小ねじ	4
(9798-3155-87)	Washer	薄ワッシャー	1
2006-1053-03	Accessory shoe spring	アクセサリーシューバネ	1

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



Part No.	Part Name		Qty
2006-0110-01	Back cover set	裏蓋セット	1
(2006-1106-02)	Hinge axis A	ヒンジ軸A	1
(2006-1108-01)	Hinge spring	ヒンジスプリング	1
(2006-1114-03)	Back cover leather	裏蓋貼皮	1
(2006-1115-03)	Conversion scale	ASA,DIN 換算板	1
(2006-1116-02)	Back cover light shield plate	裏蓋遮光片	1
(2006-1117-01)	Back cover pocket	裏蓋ポケット	1
(2006-1119-01)	Back cover light shield plate-B	裏蓋遮光片ーB	2
(2006-9109-01)	Hinge axis A screw	裏蓋ヒンジ軸止めビス	1
2006-0116-11	Back cover set	裏蓋セット	1
(2006-1442-01)	Back cover leather	裏蓋貼皮	1
2006-0140-03	Pressure plate set	圧着板セット	1

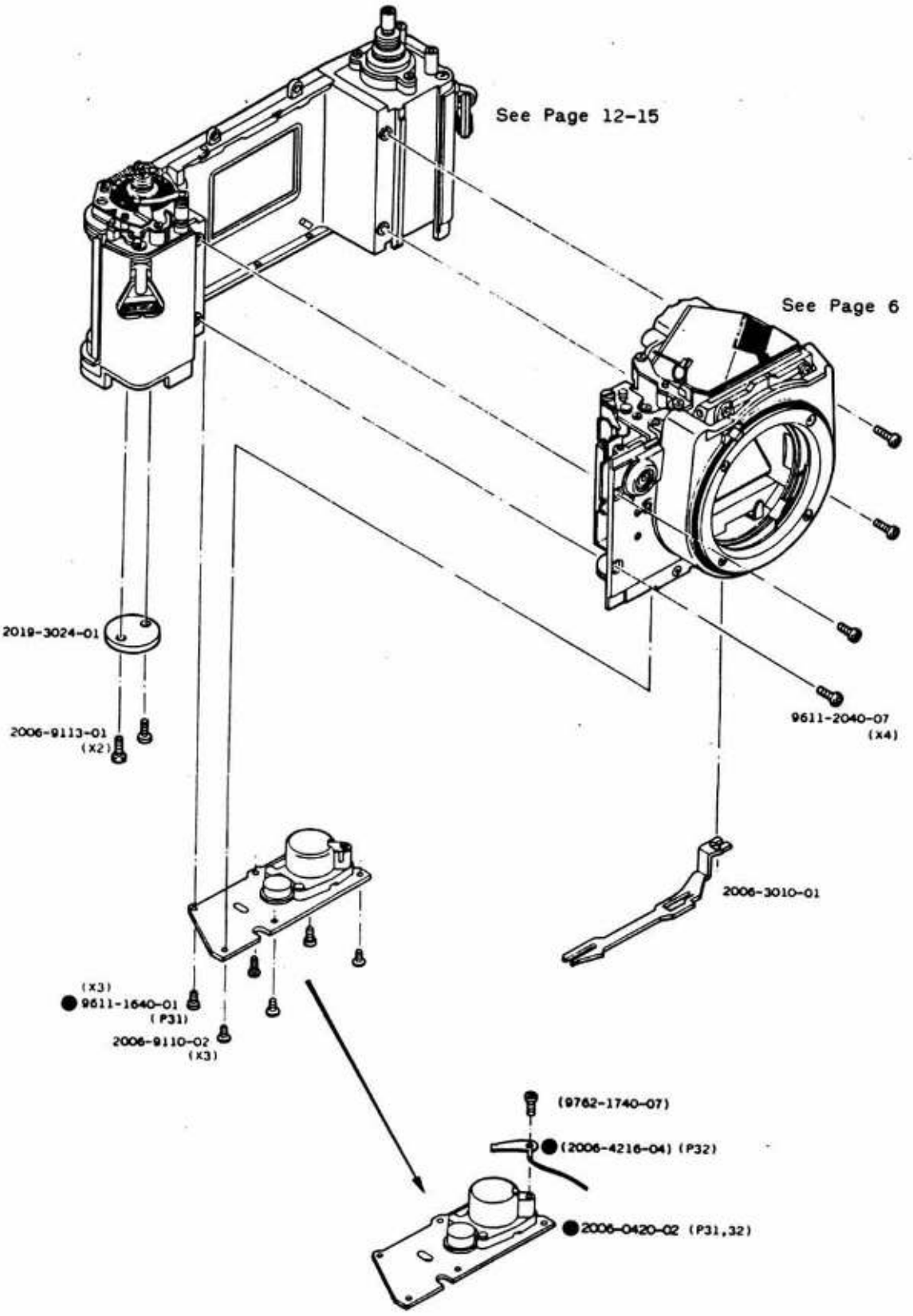
XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



Part No.	Part Name		Qty
2006-0595-03	CdS circuit base plate set	CdS基板セット	1
2006-0881-05	Eye-piece lens set	接眼レンズセット	1
2006-1015-01	Right side leather	貼皮（右）	1
2006-1016-02	Left side leather	貼皮（左）	1
2006-1019-03	Body leather	ボデー貼皮	1
2006-1402-81	Right side leather	貼皮（右）	1
2006-1422-81	Left side leather	貼皮（左）	1
2006-4025-01	Contact receiver	セルフ切換接片ホルダー受け	1
2006-4254-01	Tape-A	フレキ接着テープ	1
2006-5006-01	Eye-piece lens light shield frame	接眼レンズ遮光枠	1
2006-5008-03	Eye-piece lens pressure	接眼レンズ押え	1
2006-9117-81	Tapping screw		0-1
9612-1628-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1685-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9692-1740-07	Phillips type tapping screw	十字穴付タッピンねじ	3
9692-1745-01	Phillips type tapping screw	十字穴付タッピンねじ	1
9692-1745-07	Phillips type screw		0-2
9692-1755-01	Phillips type screw		0-1
9793-1950-86	Washer	薄ワッシャー	1
2006-4221-81	SW.8 sub spring	SW.8 補助スプリング	1
2006-4222-81	Spring hanger	SW.8 補助スプリング掛け	1

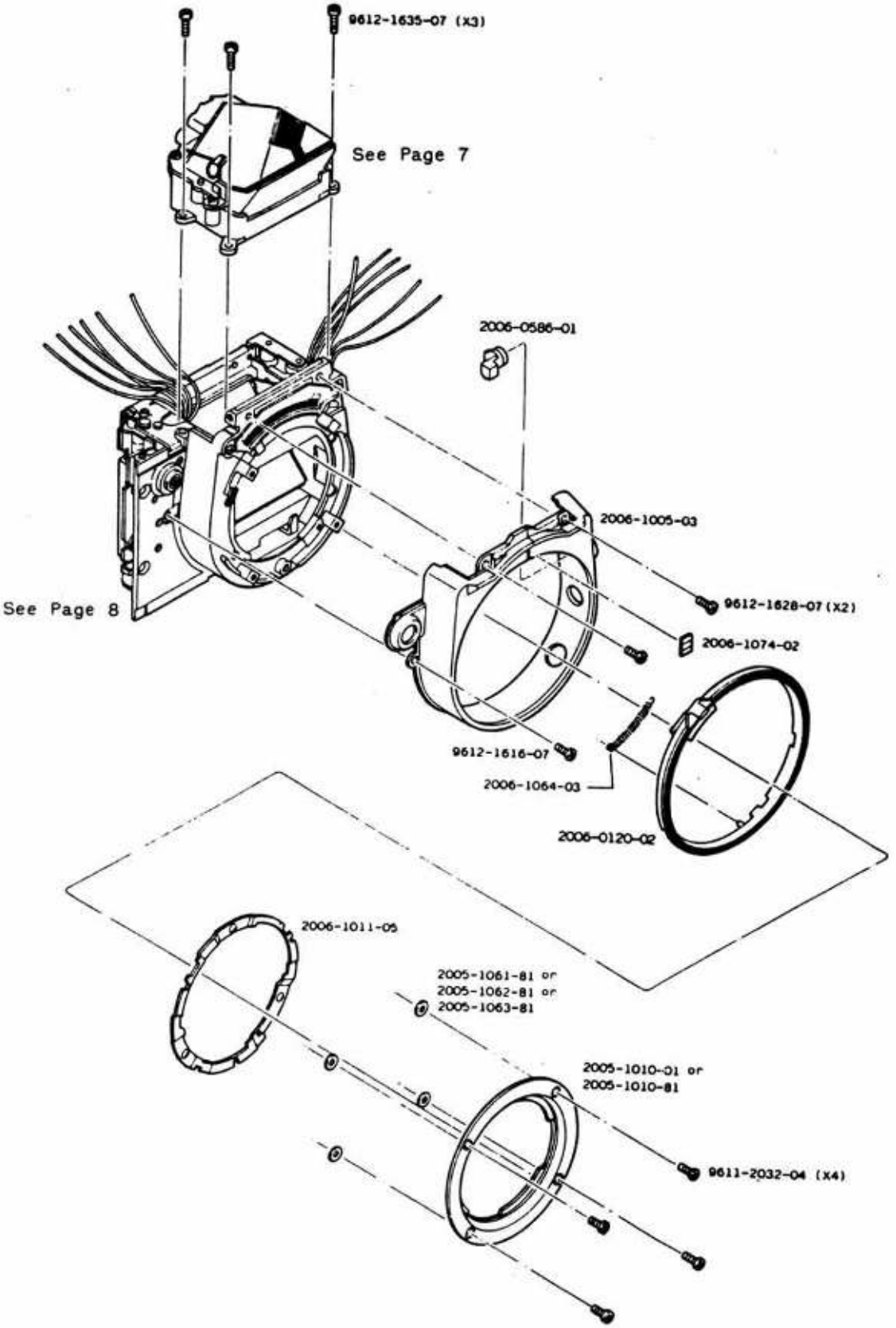
Symbol	Part No.	Part Name	Type.	Qty.
R1	9431-3347-31		1/16W, 330KΩ	1
	9431-3947-31		1/16W, 390KΩ	
	9431-4747-31		1/16W, 470KΩ	
	9431-5647-31		1//6W, 570KΩ	
	9431-6847-31		1/16W, 680KΩ	
	9431-8247-31		1/16W, 820KΩ	
	9431-1057-31		1/16W, 1MΩ	
	9431-1257-31		1/16W, 1.2MΩ	
	9431-1557-31		1/16W, 1.5MΩ	
R2	9422-1516-32	Fixed resistor	1/8W, 150Ω	1
	9422-2216-32		1/8W, 220Ω	
	9422-2716-32		1/8W, 270Ω	
	9422-3316-32		1/8W, 330Ω	
	9422-3916-32		1/8W, 390Ω	
	9422-4716-32		1/8W, 470Ω	
	9422-5616-32		1/8W, 560Ω	
	9422-6816-32		1/8W, 680Ω	
	9422-8216-32		1/8W, 820Ω	
	9422-1026-32		1/8W, 1KΩ	
	9422-1226-32		1/8W, 1.2KΩ	
	9422-1526-32		1/8W, 1.5KΩ	
	9422-1826-32		1/8W, 1.8KΩ	

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



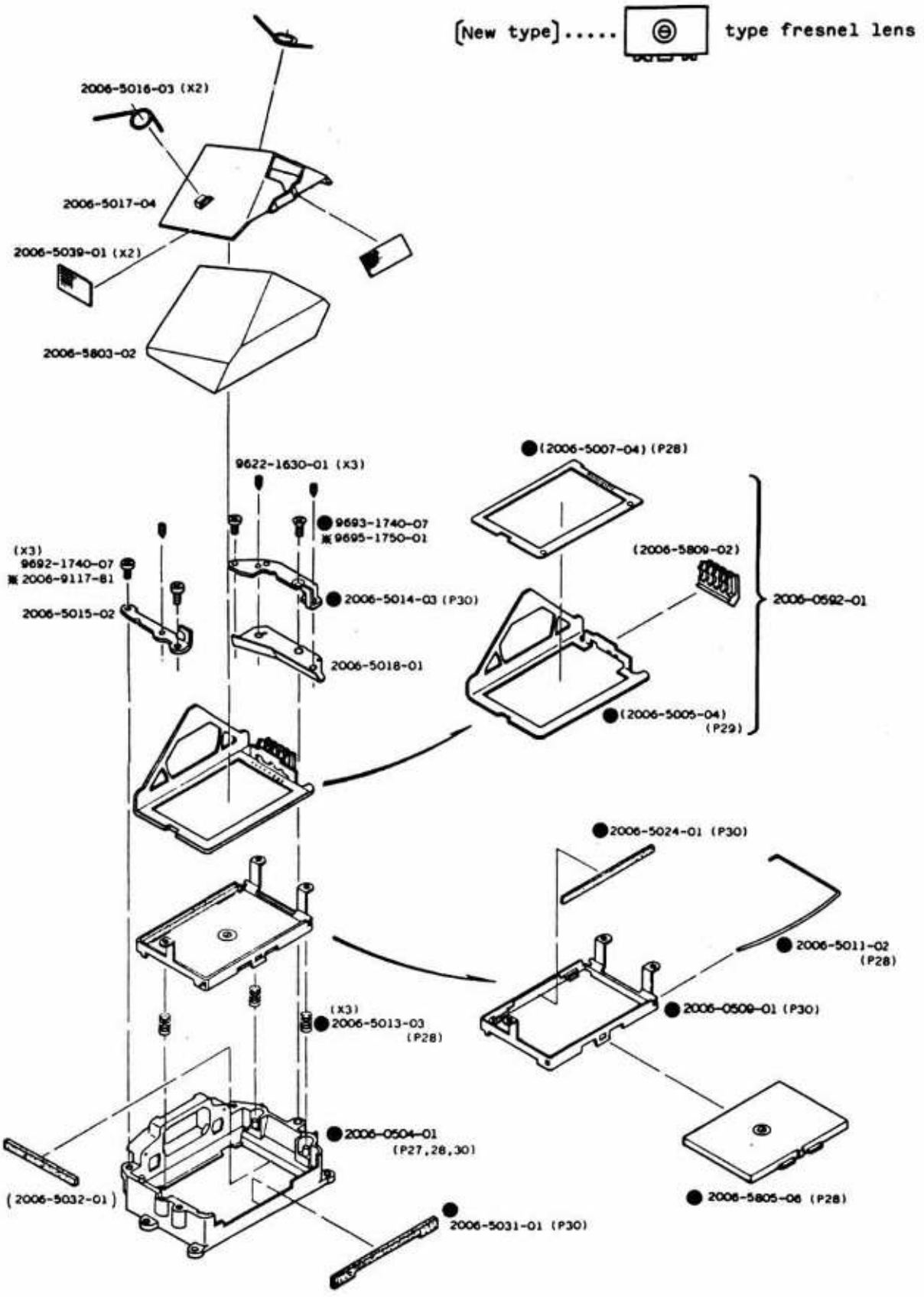
Part No.	Part Name		Qty
2006-0420-02	Battery case base plate set	電池ケース台板セット	1
(2006-4216-04)	Plus side contact	電池ケース接片プラス側	1
(9762-1740-07)	Phillips type tapping screw	十字穴付タッピンねじ	1
2006-3010-01	Charge lever	チャージレバー	1
2019-3024-01	Winder coupler	ワインダーカプラー	1
2006-9110-02	Screw-A	特殊止めビス A	3
2006-9113-01	Screw-E	特殊止めビス E	2
9611-1640-01	Phillips type screw	十字穴付なべ頭小ねじ	3
9611-2040-07	Phillips type screw	十字穴付なべ頭小ねじ	4

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



Part No.	Part Name		Qty
2006-0120-02	Aperture coupling ring set	連結リングセット	1
2006-0586-01	Lens lock button set	レンズロック釦セット	1
2006-1005-03	Front cover	前カバー	1
2005-1010-01	Bayonet lens mount	バヨネット座板	1
2005-1010-81	Bayonet lens mount (-0.1mm)	バヨネット座板 (−0.1mm)	
2006-1011-05	Bayonet spring	バヨネットスプリング	1
2005-1061-81	Adjustment washer-A t=0.02	座板調整用ワッシャーA	Some若干
2005-1062-82	Adjustment washer-B t=0.05	座板調整用ワッシャーB	Some若干
2005-1063-81	Adjustment washer-C t=0.1	座板調整用ワッシャーC	Some若干
2006-1064-03	Aperture coupling ring spring	連結リングスプリング	1
2006-1074-02	Front cover indication	前カバー指標	1
9611-2032-04	Phillips type screw	十字穴付なべ頭小ねじ	4
9612-1616-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1628-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9612-1635-07	Phillips type screw	十字穴付なべ頭小ねじ	3

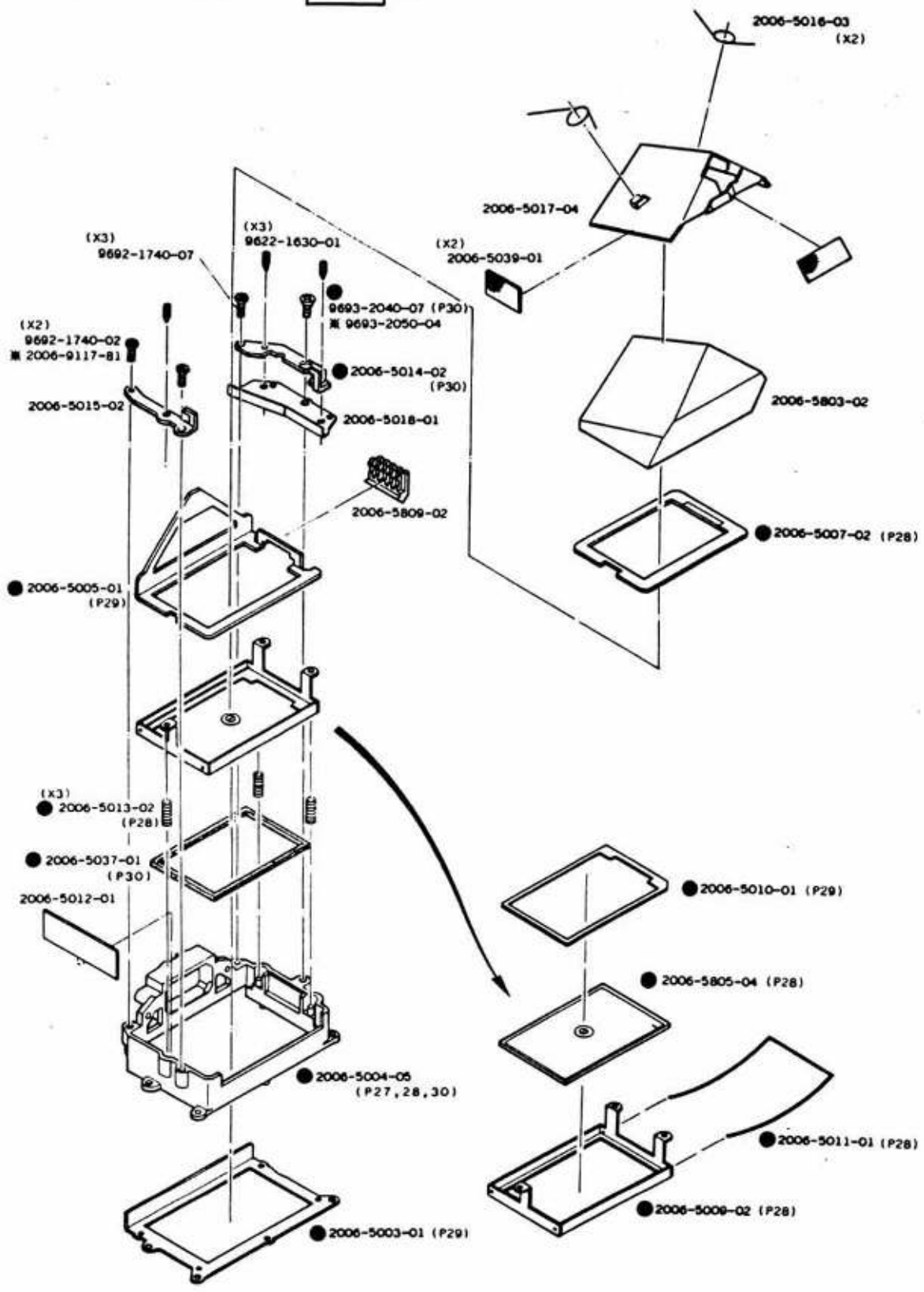
XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



Part No.	Part Name		Qty
2006-0504-01	Penta. holder set	ペンタホルダーセット	1
(2006-5032-01)	Packing-B	防塵モルトプレンB	1
2006-0509-01	Fresnel lens holder set	焦点板ホルダーセット	1
2006-0592-01	Penta. receiver set	ペンタ受けセット	1
(2006-5005-04)	Penta. receiver	ペンタ受け	1
(2006-5007-04)	Scale plate	目盛板	1
(2006-5809-02)	L.E.D mirror	光路棒	1
2006-5011-02	Fresnel lens pressure spring	焦点板押えスプリング	1
2006-5013-03	Fresnel lens holder spring	焦点板ホルダースプリング	3
2006-5014-03	Penta. pressure (Left side)	ペンタ押え板（左）	1
2006-5015-02	Penta. pressure (Right side)	ペンタ押え板（右）	1
2006-5016-03	Penta. spring	ペンタ押えスプリング	2
2006-5017-04	Penta. pressure	ペンタ押え板	1
2006-5018-01	L.E.D diffusion plate	ＬＥＤ拡散板	1
2006-5024-01	Packing-C	防塵モルトプレンC	1
2006-5031-01	Packing-A	防塵モルトプレンA	1
2006-5039-01	Penta. pressure tape	ペンタ押え板接着テープ	2
2006-5803-02	Penta. prism	ペンタプリズム	1
2006-5805-06	Fresnel lens	焦点板	1
2006-9117-81	Tapping screw		0-3
9622-1630-01	Screw	とがり先止めねじ	3
9692-1740-07	Phillips type tapping screw	十字穴付タッピンねじ	3
9693-1740-07	Phillips type tapping screw	十字穴付タッピンねじ	1
9693-1750-04	Phillips type screw		0-1

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600

(Previous type)..... ⊖ type fresnel lens



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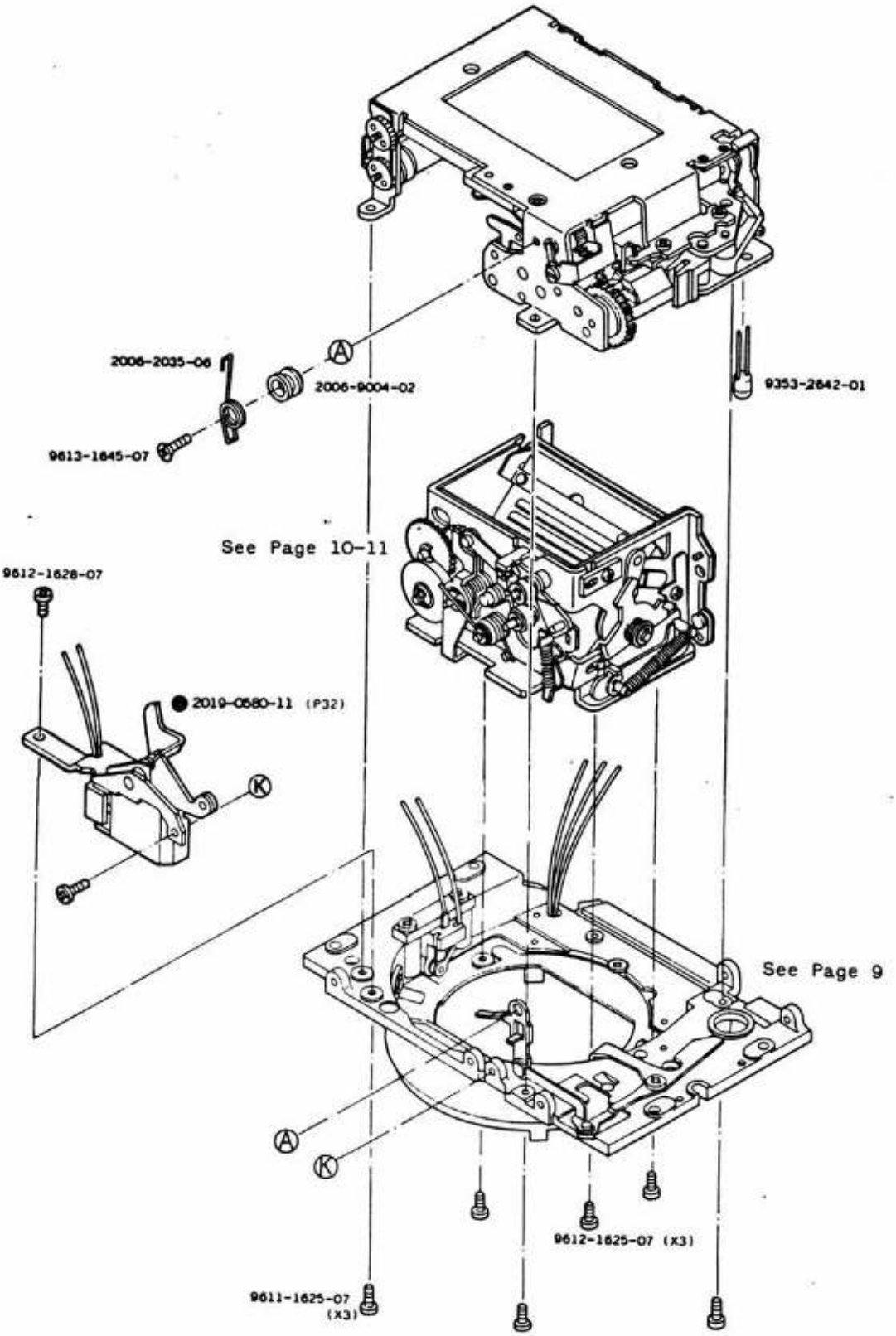
Part No.	Part Name		Qty
2006-5003-01	Penta. holder shield plate	ペンタホルダー防塵板	1
2006-5004-05	Penta. hodler	ペンタホルダー	1
2006-5005-01	Penta. receiver	ペンタ受け	1
2006-5007-02	Scale plate	目盛板	1
2006-5009-02	Fresnel lens holder	焦点板ホルダー	1
2006-5010-01	Fresnel lens frame	視野枠	1
2006-5011-01	Fresnel lens pressure spring	焦点板押えスプリング	1
2006-5012-01	Space prevention plate	ペンタガタ防止片	1
2006-5013-02	Fresnel lens holder spring	焦点板ホルダースプリング	3
2006-5014-02	Penta. pressure (Left side)	ペンタ押え板（左）	1
2006-5015-02	Penta. pressure (Right side)	ペンタ押え板（右）	1
2006-5016-03	Penta. spring	ペンタ押えスプリング	2
2006-5017-04	Penta. pressure	ペンタ押え板	1
2006-5018-01	L.E.D diffustion plate	ＬＥＤ拡散板	1
2006-5037-01	Finder packing	ファインダー防塵片	1
2006-5039-01	Penta. pressure tape	ペンタ押え板接着テープ	2
2006-5803-02	Penta. prism	ペンタプリズム	1
2006-5805-04	Fresnel lens	焦点板	1
2006-5809-02	L.E.D mirror	光路棒	1
2006-9117-81	Tapping screw		0-3
9622-1630-01	Screw	とがり先止めねじ	3
9692-1740-02	Phillips type tapping screw	十字穴付タッピンねじ	2
9692-1740-07	Phillips type tapping screw	十字穴付タッピンねじ	1
9693-2040-07	Phillips type tapping screw	十字穴付タッピンねじ	1
9693-2050-04	Phillips type screw		0-1

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



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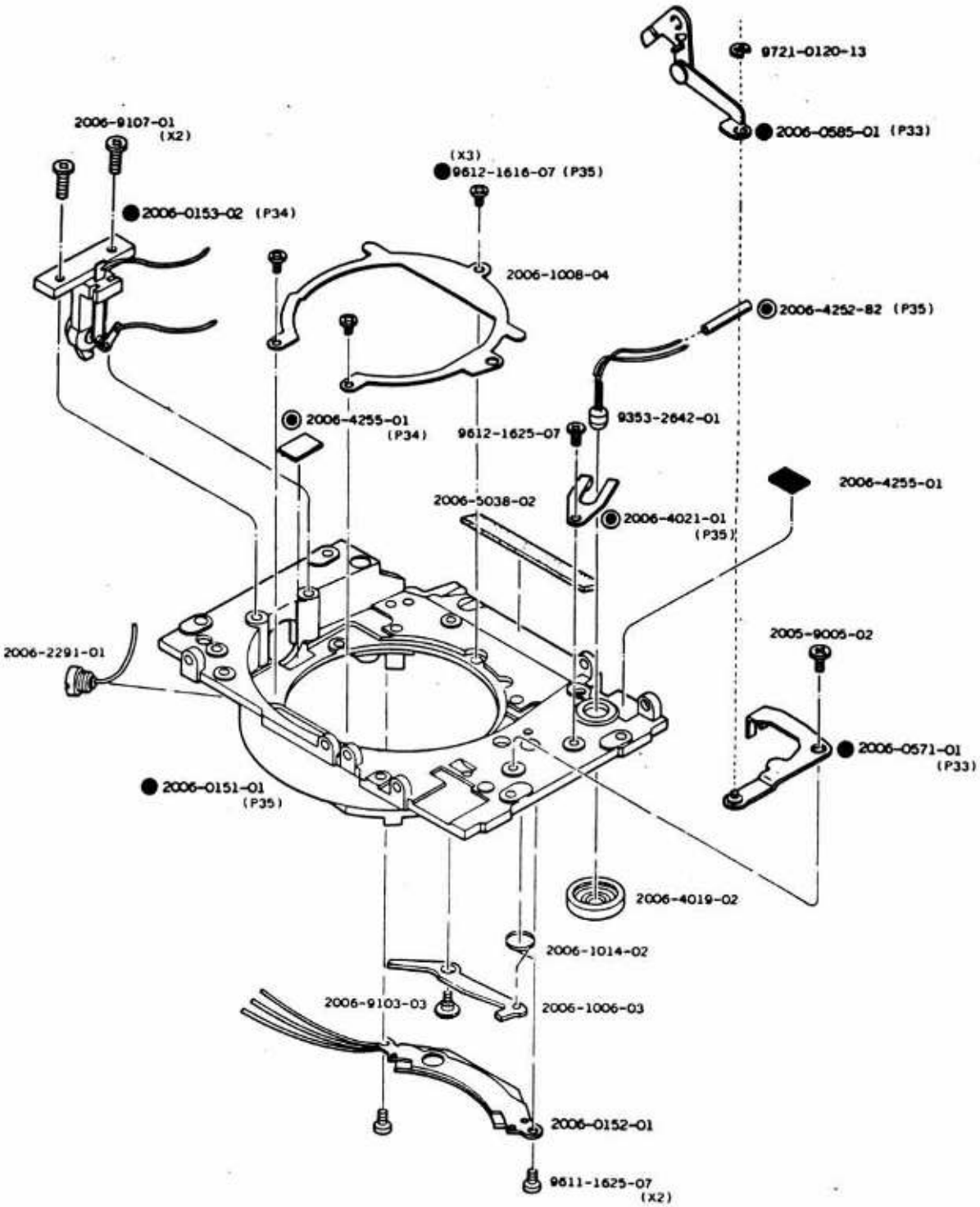
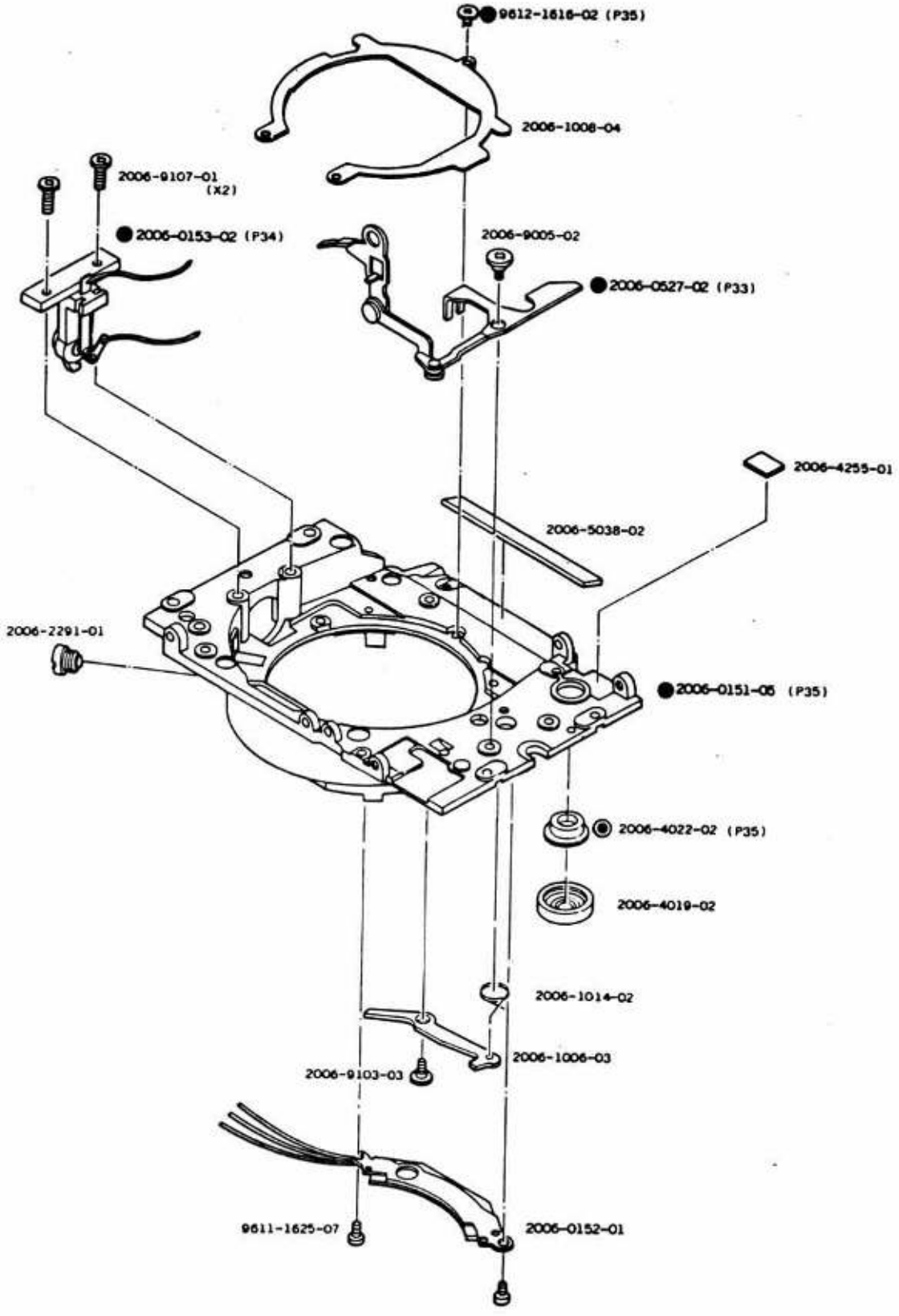
Part No.	Part Name		Qty
2019-0580-11	MG 2 set	MG 2セット	1
2006-2035-06	Release operation lever spring	戻着用スプリング	1
2006-9004-02	Release operation lever A set screw	レリーズ連結レバーA止めビス	1
9353-2642-01	L.E.D	L.E.D	1
9611-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	3
9612-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	3
9612-1628-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9613-1645-07	Phillips type screw	十字穴付皿小ねじ	1

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



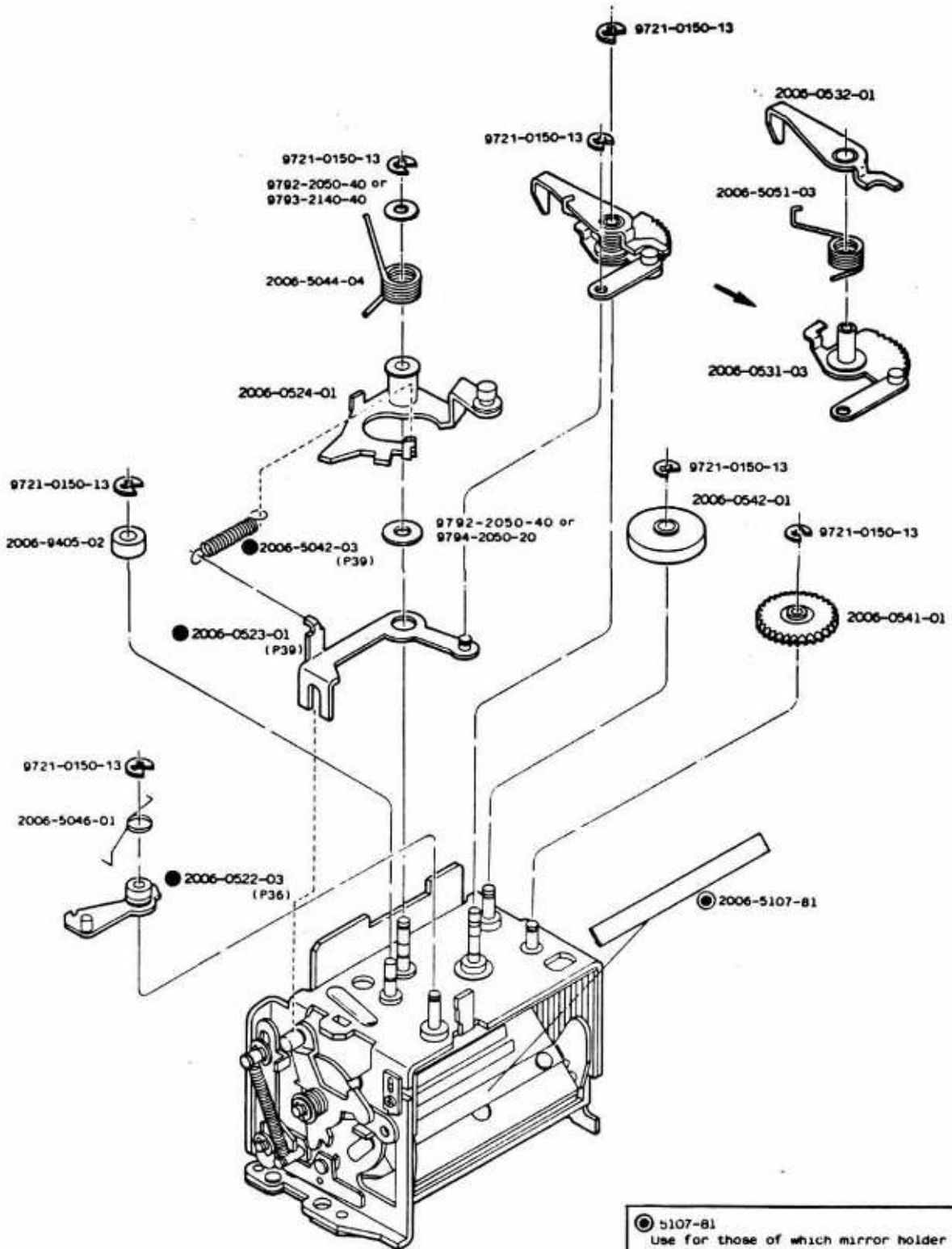
Part No.	Part Name		Qty
2006-0151-01	Front base plate set	前枠セット	1
2006-0152-01	Circuit base plate-B set	回路基板Bセット	1
2006-0153-02	Remote control base plate set	リモコン台板セット	1
2006-0571-01	Release operation lever-C set	レリーズ連結レバーCセット	1
2006-0585-01	Release operation lever A set	レリーズ連結レバーAセット	1
2006-1006-03	Lens lock lever	レンズロックレバー	1
2006-1008-04	Mirror box light shield plate	ミラーボックス遮光板	1
2006-1014-02	Lock lever spring	ロックレバースプリング	1
2006-2291-01	Synchro terminal set	シンクロターミナルセット	1
2006-4019-02	Self-timer window	セルフ表示窓	1
2006-4255-01	Tape-A (3.8X8)	テープA	1
2006-5038-02	Penta. front packing	ペンタ前面押え板	1
2005-9005-02	Release operation lever-C set screw	レリーズ連結レバーC止めビス	1
2006-9103-03	Lens lock axis	レンズロック軸	1
2006-9107-01	Screw-D	特殊止めビスD	2
9353-2642-01	L.E.D	L.E.D	1
9611-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9612-1616-07	Phillips type screw	十字穴付なべ頭小ねじ	3
9612-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9721-0120-13	E-ring	E リング	1
2006-4021-01	L.E.D fixed plate	セルフ表示LED固定板	1
2006-4252-82	L.E.D tube	LED絶縁チューブ	1
2006-4255-01	Tape-A	テープ A	1

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



Part No.	Part Name		Qty
2006-0151-05	Front base plate set	前枠セット	1
2006-0152-01	Circuit base plate-B set	回路基板 Bセット	1
2006-0153-02	Remote control base plate set	リモコン台板セット	1
2006-0527-02	Release operation lever-A set	レリーズ連結レバーAセット	1
2006-1006-03	Lens lock lever	レンズロックレバー	1
2006-1008-04	Mirror box light shield plate	ミラーボックス遮光板	1
2006-1014-02	Lock lever spring	ロックレバースプリング	1
2006-2291-01	Synchro terminal set	シンクロターミナルセット	1
2006-4019-02	Self-timer window	セルフ表示窓	1
2006-4022-02	Self timer indication reflector	セルフ表示反射環	1
2006-4255-01	Tape-A	テープ A	1
2006-5038-02	Penta. front packing	ペンタ前面押え板	1
2006-9005-02	Release operation lever-C set screw	レリーズ連結レバーC止めビス	1
2006-9103-03	Lens lock axis	レンズロック軸	1
2006-9107-01	Screw-D	特殊止めビスD	2
9611-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9612-1616-02	Phillips type screw	十字穴付なべ頭小ねじ	1

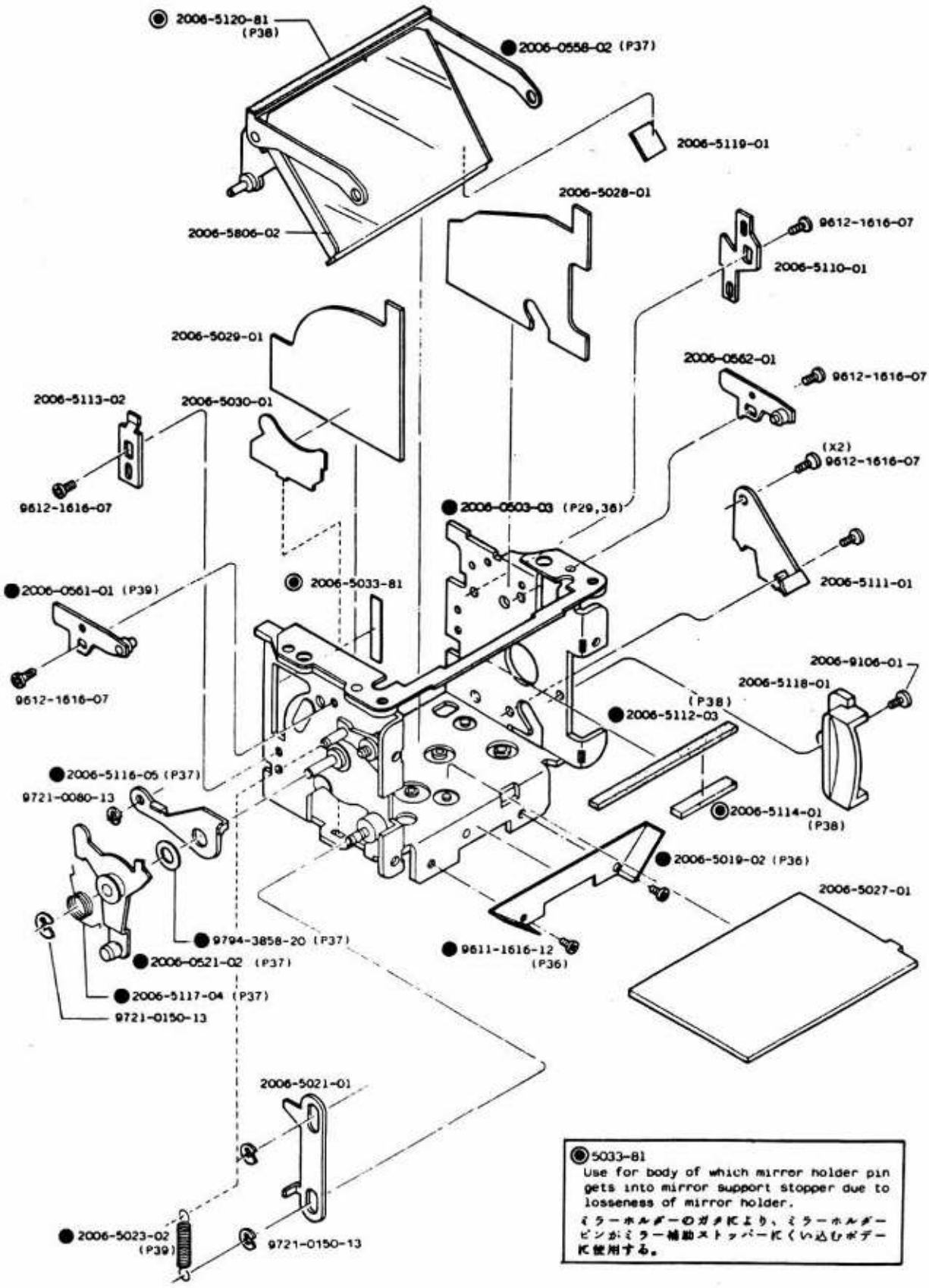
XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



◉ 5107-81
Use for those of which mirror holder arm is not painted.
ミラーホルダーアーム塗装されていないものに使用する。

Part No.	Part Name		Qty
2006-0522-03	Mirror return lever lock claw set	ミラー戻しレバーロック爪セット	1
2006-0523-01	Preset operation lever set	プリセット連動レバーセット	1
2006-0524-01	Mirror return lever set	ミラー戻しレバーセット	1
2006-0531-03	Preset operation plate set	プリセット作動板セット	1
2006-0532-01	Preset lever set	プリセットレバーセット	1
2006-0541-01	Speed increase gear	増速ギヤーAセット	1
2006-0542-01	Fly wheel gear set	フライホイールギヤーセット	1
2006-5042-03	Mirror-up spring	ミラーアップスプリング	1
2006-5044-04	Mirror return spring	ミラー戻しスプリング	1
2006-5046-01	Lock claw spring	ロック爪スプリング	1
2006-5051-03	Preset lever spring	プリセットレバースプリング	1
2006-9405-02	Stopper pin bush	ストッパーピンブッシュ	1
9721-0150-13	E-ring	E リング	7
9792-2050-40	Washer	薄ワッシャー	O-2
9793-2140-40	Washer	薄ワッシャー	O-1
9794-2050-20	Washer	薄ワッシャー	O-1
2006-5107-81	Mirror arm sheet	ミラーアーム保護シート	1

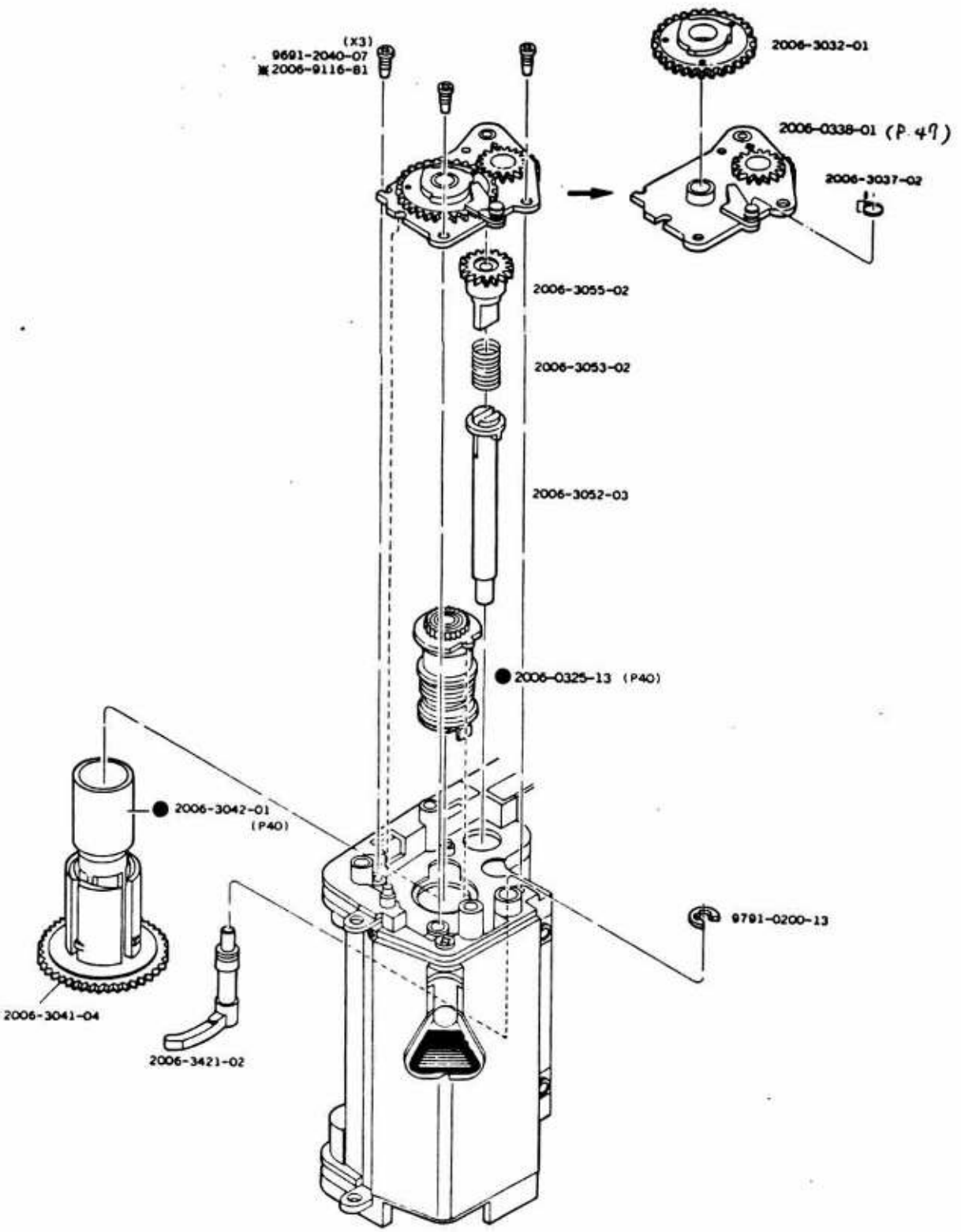
XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



◉5033-81
Use for body of which mirror holder pin gets into mirror support stopper due to losseness of mirror holder.
ミラーホルダーのガタにより、ミラーホルダーピンがミラー補助ストッパーにくい込むボデーに使用する。

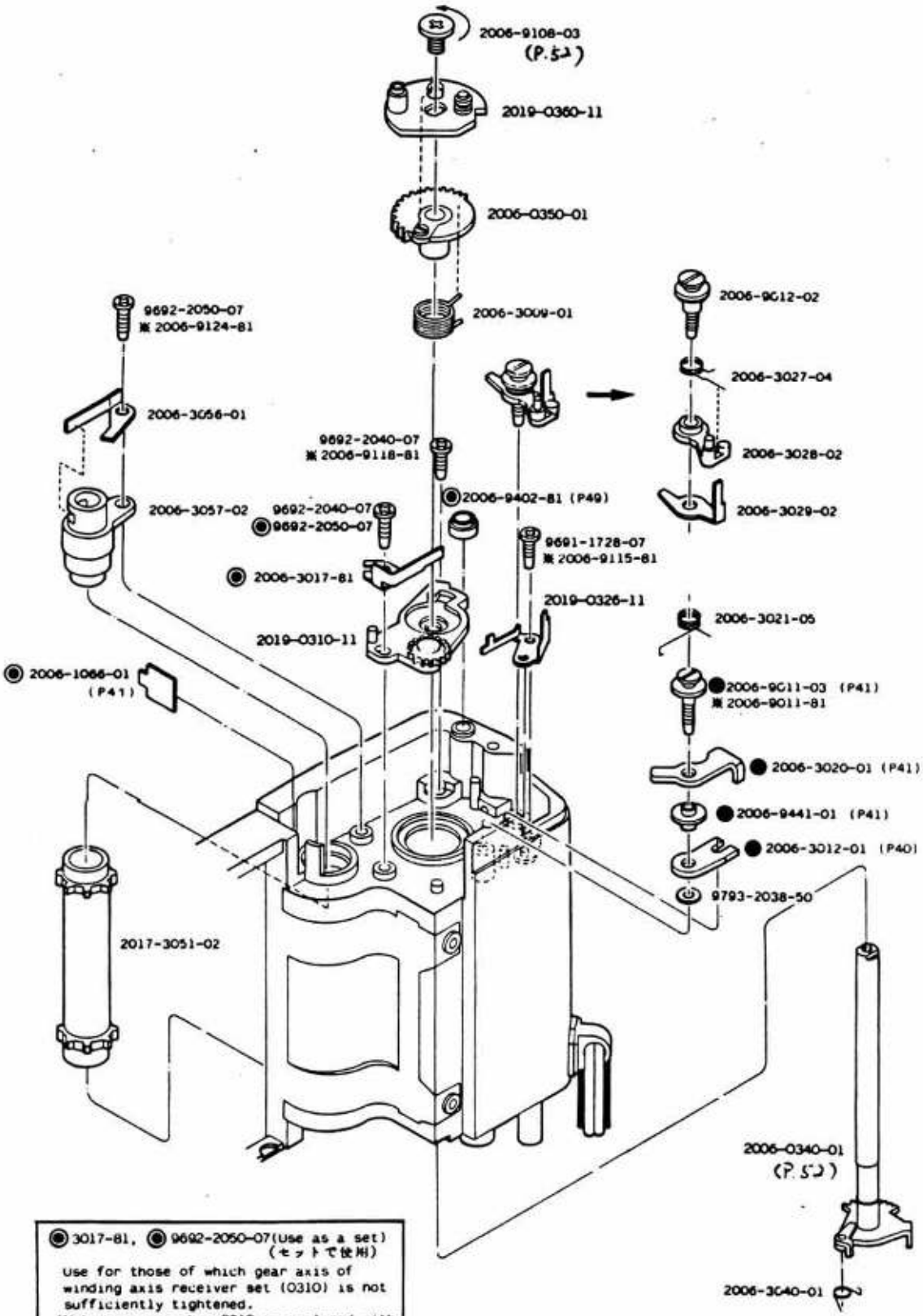
Part No.	Part Name		Qty
2006-0381-01	Counter ratchet set	カウンターラチエットセット	1
2006-0382-03	Return lever set	ゼロリターンレバーセット	1
2006-0383-01	Counter operation gear-A set	カウンター連結ギヤーセット	1
2006-0384-01	Winding base plate-B set	巻取台板Bセット	1
2006-0385-01	Film indication lever axis set	フイルム表示レバー軸セット	1
2006-0386-01	Counter operation lever set	カウンター駆動操作レバーセット	1
2006-3404-02	Counter return spring	カウンター戻しスプリング	1
2006-3407-06	Counter index	カウンター指標	1
2006-3409-02	Counter operation lever spring	カウンター駆動操作レバーSP	1
2006-3410-02	Counter operation gear-B	カウンター駆動ギヤー	1
2006-3411-04	Counter operation gear-C	カウンター伝達ギヤー	1
2006-3414-03	Return lever spring	ゼロリターンレバースプリング	1
2006-3415-03	Winding operation lever-A	トンボ返りレバー	1
2006-3416-02	Winding operation lever-A spring	トンボ返りレバースプリング	1
2006-9001-01	Winding operation lever-A screw	トンボ返りレバー止めビス	1
9612-1416-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9613-1418-01	Phillips type screw	十字穴付皿小ねじ	1
9691-2045-07	Phillips type tapping screw	十字穴付タッピンねじ	2
9691-2055-07	Phillips type tapping screw		0-2
9693-2045-01	Phillips type tapping screw	十字穴付タッピンねじ	1
9695-2055-07	Phillips type tapping screw		0-1
9721-0120-13	E-ring	Eリング	1

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



Part No.	Part Name		Qty
2006-0325-13	Spool gear set	スプールギヤーセット	1
2006-0338-01	Winding base plate-A set	巻取台板Aセット	1
2006-3032-01	Winding gear	巻取ギヤー	1
2006-3037-02	Reversing stop claw spring	逆転防止爪スプリング	1
2006-3041-04	Spool	スプール	1
2006-3042-01	Spool inner barrel	スプール内筒	1
2006-3052-03	Sprocket shaft	スプロケット軸	1
2006-3053-02	R button release spring	R釦解除スプリング	1
2006-3055-02	Sprocket gear	スプロケットギヤー	1
2006-3421-02	Film indication filler	フイルム表示フイラー	1
2006-9116-81	Tapping screw		0-3
9691-2040-07	Phillips type screw	十字穴付タッピンねじ	3
9791-0200-13	E-ring	E リング	1

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



3017-81, 9692-2050-07(Use as a set)
(セットで使用)

Use for those of which gear axis of winding axis receiver set (0310) is not sufficiently tightened.
(Not necessary when 0310 is replaced with servicing part.)

巻取軸受セット(0310)のギヤー軸の加締がゆるいものに使用する。(但し、サービス用部品に交換した場合は不要)

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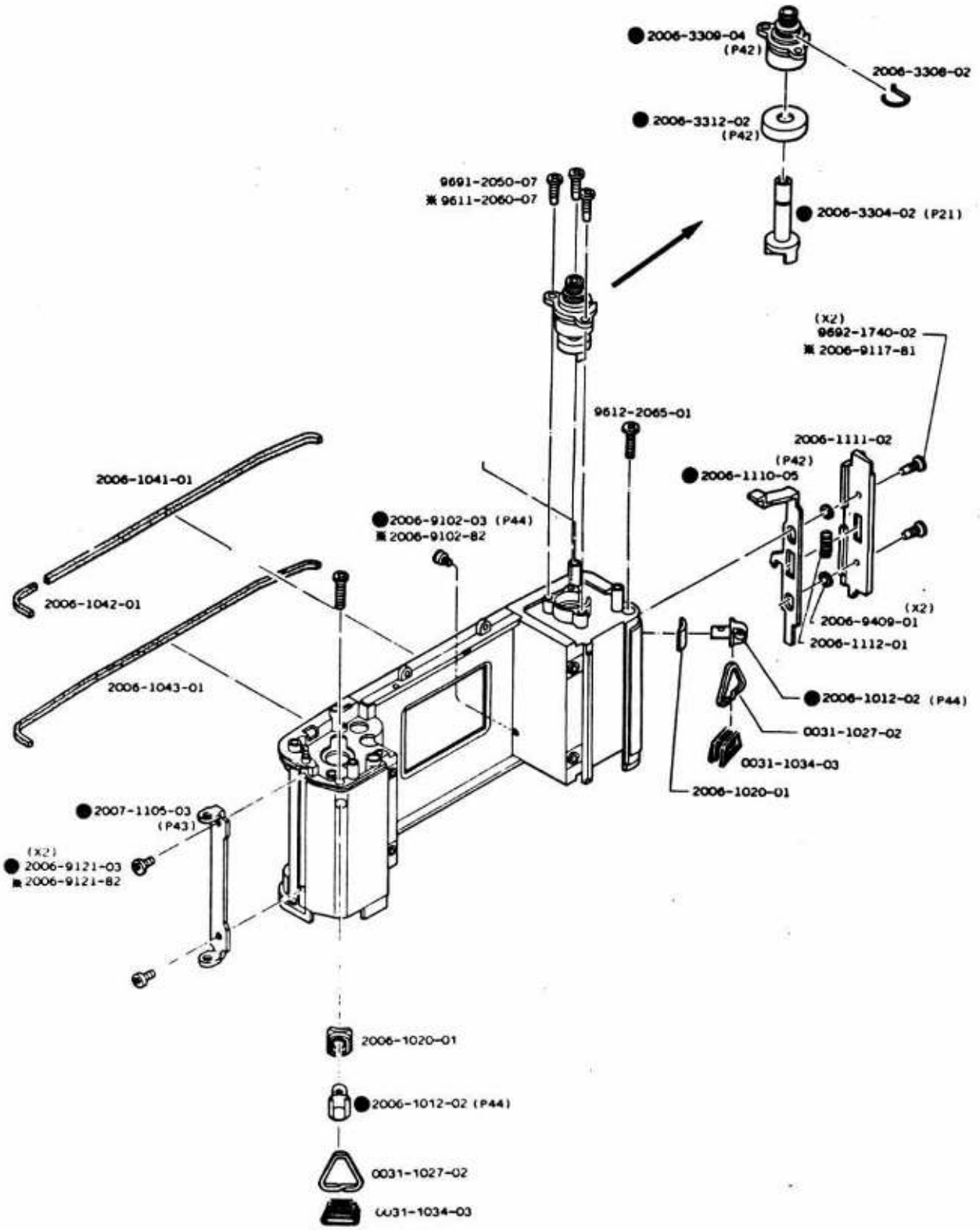
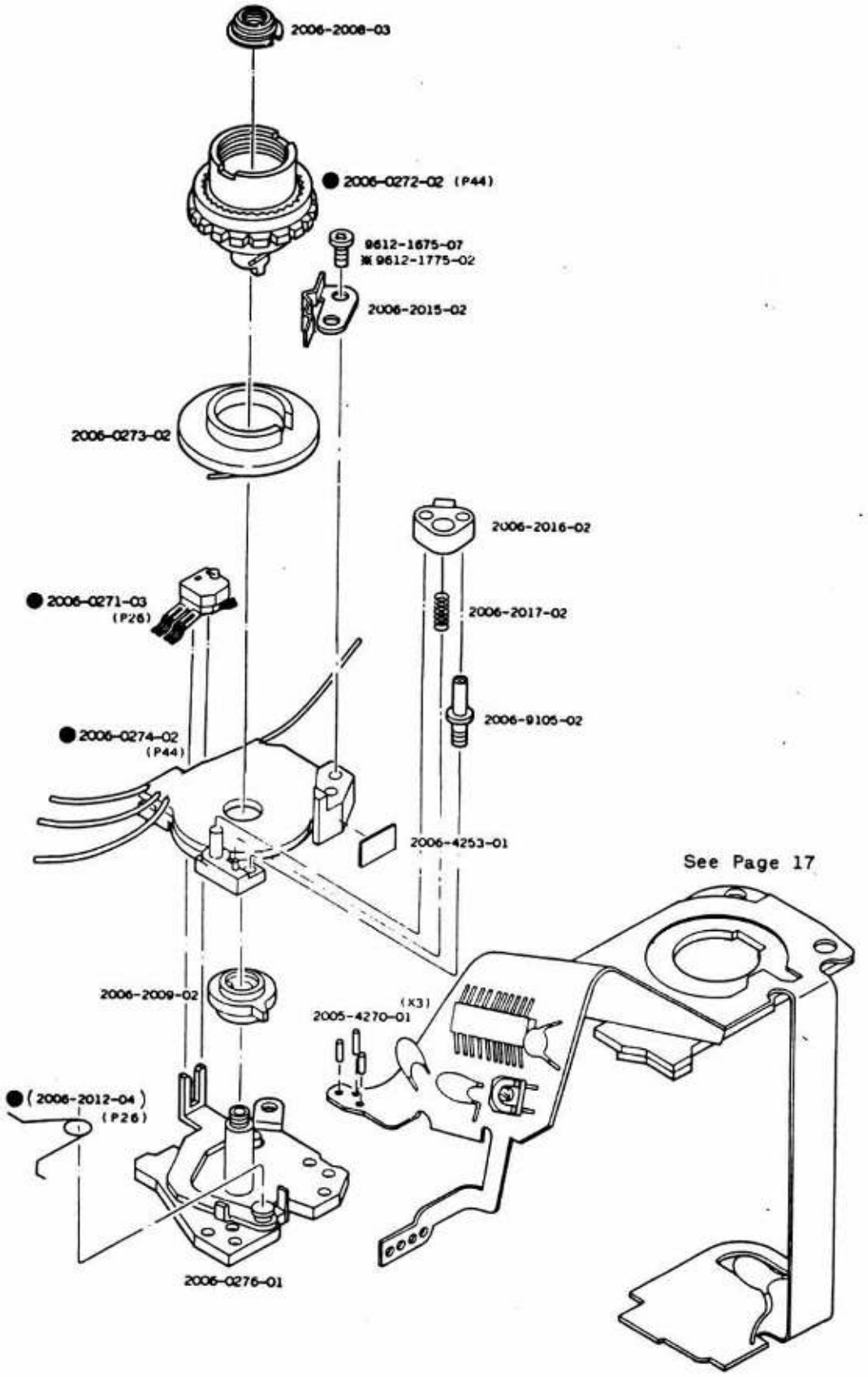
Part No.	Part Name		Qty
2019-0310-11	Winding axis receiver set	巻取軸受セット	1
2019-0326-11	S4 contact	S4 接片	1
2006-0340-01	Winding operation plate set	巻取操作板セット	1
2006-0350-01	Shutter charge gear-D set	シャッターチャージギヤーDセット	1
2019-0360-11	Charge operation plate set	チャージ操作板セット	1
2006-3009-01	Return spring	戻しスプリング	1
2006-3012-01	Winding stop lever	巻止めレバー	1
2006-3020-01	Reset lever	リセットレバー	1
2006-3021-05	Reset lever spring	リセットレバースプリング	1
2006-3027-04	S4 spring	S4 バネ	1
2006-3028-02	S4 change lever	S4 切換レバー	1
2006-3029-02	S4 lug plate	S4 ラグ板	1
2006-3040-01	Winding claw spring	巻取爪スプリング	1
2017-3051-02	Sprocket	スプロケット	1
2006-3056-01	R button lock spring	R 釦ロックバネ	1
2006-3057-02	Sprocket receiver	スプロケット軸受	1
2006-9011-03 2006-9011-81	Winding stop lever axis	巻止めレバー軸	1
2006-9012-02	S4 change lever	S4 切換レバー	1
2006-9108-03	Charge plate pressure	チャージ板押えビス	1
2006-9115-81	Tapping screw		0-1
2006-9441-01	Winding stop lever base	巻止めレバー台	1
2006-9118-81	Tapping screw		0-2
2006-9124-81	Tapping screw		0-1
9691-1728-07	Phillips type tapping screw	十字穴付タッピンねじ	1
9692-2040-07	Phillips type tapping screw	十字穴付タッピンねじ	2
9692-2050-07	Phillips type tapping screw	十字穴付タッピンねじ	1
9793-2038-50	Washer	薄ワッシャー	1
2006-1066-01	Light shield plate	遮光片	1
2006-3017-81	Shutter charge gear-C axis holder	シャッターチャージギヤーC軸押え	1
2006-9402-81	Collar	ワインダー位置決めボス補正カラー	1
9692-2050-07	Phillips type tapping screw	十字穴付タッピンねじ	1

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



Part No.	Part Name		Qty
2006-1012-02	Strap hanger	吊環	2
2006-1020-01	Strap hanger seat	吊環座	2
0031-1027-02	Strap hanger ring	三角吊環	2
0031-1034-03	Strap hanger ring stopper	三角環回り止め	2
2006-1041-01	Light shield packing-A	遮光パッキンA	1
2006-1042-01	Light shield packing-B	遮光パッキンB	1
2006-1043-01	Light shield packing-C	遮光パッキンC	1
2007-1105-03	Hinge	ヒンジ	1
2006-1110-05	Back cover lock lever	裏蓋ロックレバー	1
2006-1111-02	Lock cover	ロックカバー	1
2006-1112-01	Back cover lock spring	裏蓋ロックスプリング	1
2006-3304-02	Rewinding fork	巻戻しフォーク	1
2006-3308-02	Rewinding friction spring	巻戻しフリクションスプリング	1
2006-3309-04	Rewinding axis receiver	巻戻し軸受	1
2006-3312-02	Light shield collar	巻戻し遮光カラー	1
2006-9102-03	Film guide screw	フイルムガイドビス	1
2006-9102-82	Film guide screw		0-1
2006-9121-03	Tapping screw	特殊ねじ	2
2006-9121-82	Tapping screw		0-2
2006-9409-01	Back cover lock guide	裏蓋ロックガイド	2
2006-9117-81	Tapping screw		0-2
9612-2065-01	Phillips type screw	十字穴付なべ頭小ねじ	2
9691-2050-07	Phillips type tapping screw	十字穴付タッピンねじ	2
9691-2060-07	Phillips type tapping screw		0-3
9692-1740-02	Phillips type tapping screw	十字穴付タッピンねじ	2
2006-1077-81	Collar	ボス割れ救済カラー	1
2006-9120-82	Sub axis	ボデー用ボス救済支柱	0-3

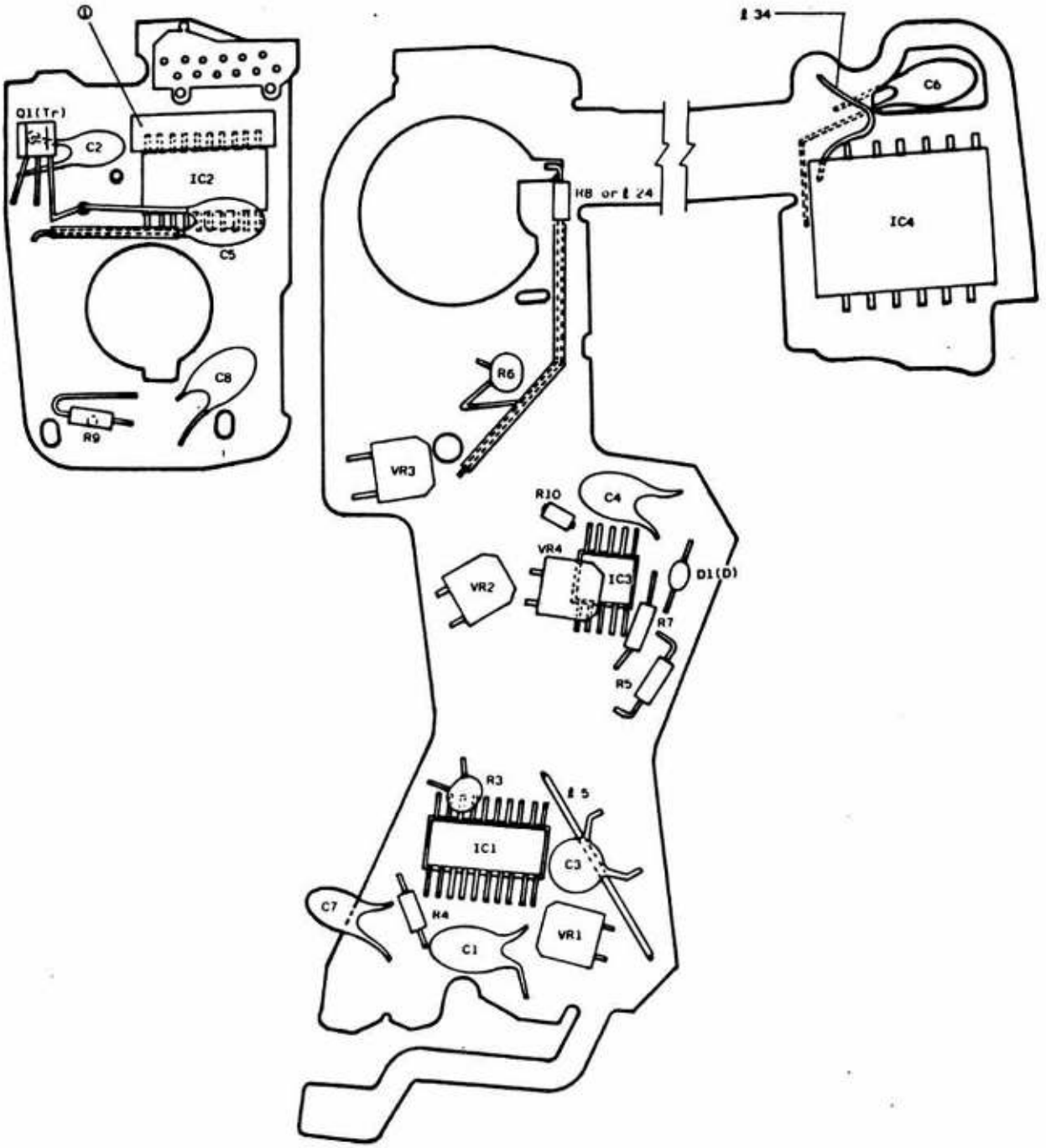
XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600



Part No.	Part Name		Qty
2006-0271-03	AM change holder set	AM 切換ホルダーセット	1
2006-0272-02	Dial axis set	ダイヤル軸セット	1
(2006-2012-04)	AM change spring	AM 切換スプリング	1
2006-0273-02	ASA brush holder set	ASA ブラシホルダーセット	1
2006-0274-02	ASA resistor set	回路基板Aセット	1
2006-0276-01	Shutter speed dial base plate set	シャッターダイヤル台板セット	1
2006-2008-03	Shutter speed dial pressure	シャッターダイヤル押え	1
2006-2009-02	Cam plate	カム板	1
2006-2015-02	Click spring	クリックバネ	1
2006-2016-02	Auto lock plate	オートロック板	1
2006-2017-02	Auto lock spring	オートロックバネ	1
2006-4253-01	Tape-B	テープ B	1
2005-4270-01	Jump lead (ø 0.4 ℓ=3mm)	ジャンプリード	3
2006-9105-02	Auto lock plate guide	オートロック板ガイド	1
9612-1675-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1775-07	Phillips type screw		0-1

XG 7 CODE No. 2006-100, -200
XG 2 CODE No. 2006-300, -400
XG-E CODE No. 2006-500, -600

Assy. Part No.
2006-0402-03



For the record of modifications of Flexible circuit base plate set, refer to P.45-48.
フレキシブル基板セットの変更経歴等はP.45～48を参照して下さい。

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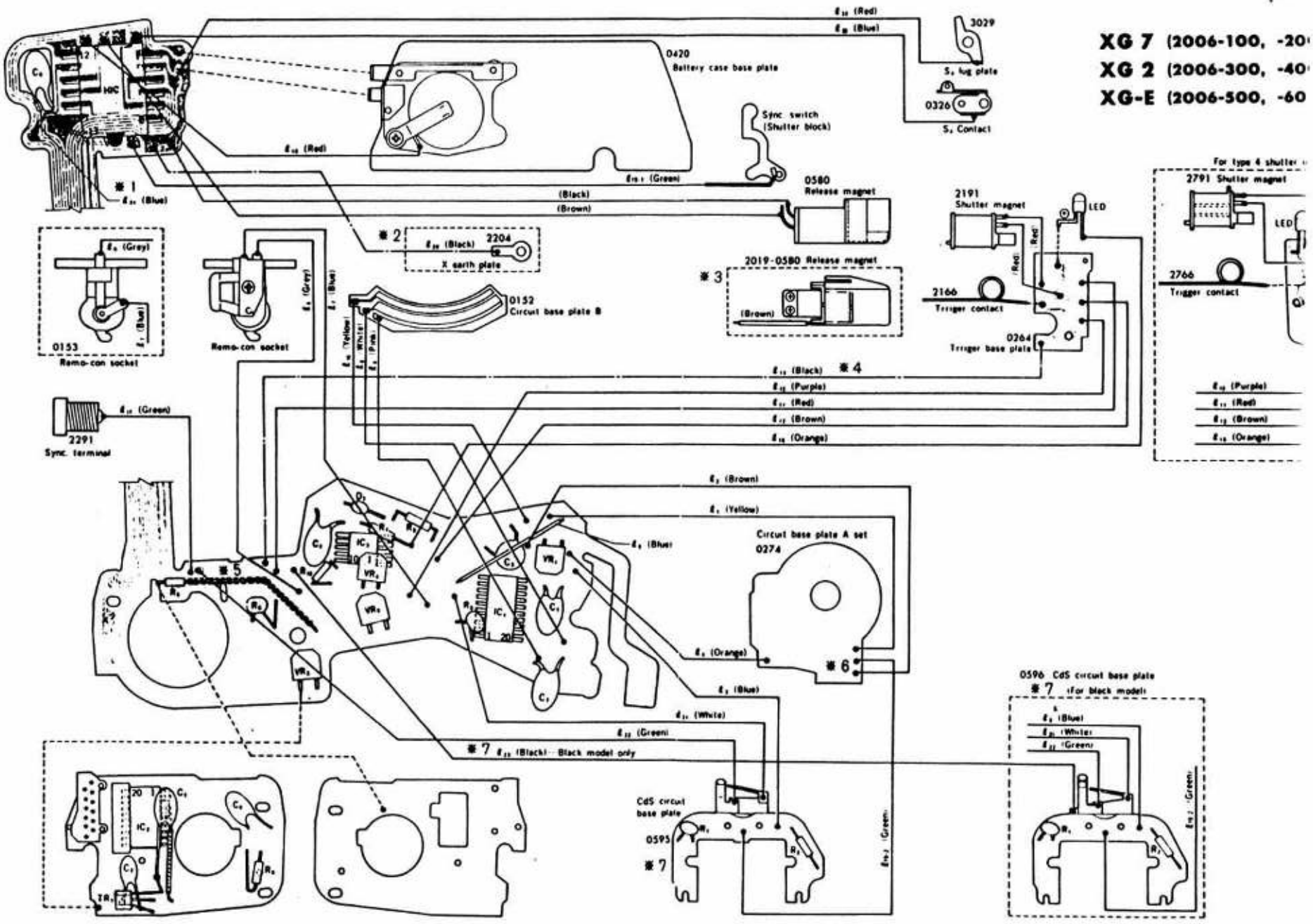
XG 7 (2006-100, -20
XG 2 (2006-300, -40
XG-E (2006-500, -60



Assy Part No. 2006-0402-03　　Assy Part Name　Flexible circuit base plate set
フレキシブル基板セット

Symbol	Part No.	Com	Part Name	Type.	Qty
IC1	2006-4301-03		I C	M51865	1
IC2	2006-4302-03			M51866	1
IC3	2006-4303-03			M51867	1
IC4	2006-4304-07			HIC	1
D1(D)	9361-5631-01		Diode	KB162	1
Q1(Tr)	9363-1032-01	02,03	Transistor	2SA1162	1
R3	9431-1037-31		Fixed resistor	1/16W 10KΩ	1
R5	9422-1046-32			1/8W 100KΩ	1
R6	9431-3047-31			1/16W 300KΩ	1
R7	9422-6806-32			1/8W 68Ω	1
R8	9422-3916-32			1/8W 390Ω	1
	9422-8216-32			1/8W 820Ω	
	9422-1826-32			1/8W 1.8KΩ	
	9422-3326-32			1/8W 3.3KΩ	
ℓ24	2006-8408-01		Lead wire Pink	φ0.08/7 wries ℓ=35mm	1
R9	9422-3016-62		Fixed resistor	1/8W 300Ω	1
R10	9422-2416-62			1/8W 240Ω	2
VR1	9472-2049-38		Variable resistor	VG062K 200KΩ	1
VR3 VR2	9472-1539-38			VG062K 15KΩ	2
VR4	9472-1529-38			VG062K 1.5KΩ	1
C1	9535-1555-36		Condenser	1.5μF/35V	1
C2	9535-6845-31			0.68μF/35V	1
C3	9563-4738-31			0.047μF/1.2V	1
C4	9531-2265-31			22μF/3.15V	1
C5	9531-4765-31			47μF/3.15V	1
C6	9531-1575-61			150μF/3.15V	1
C7	9534-1555-33	or		1.5μF/25V	1
	9534-1555-63	or		1.5μF/20V	
	9535-1555-31			1.5μF/35V	
C8	9531-3365-31			33μF/3.15V	1
ℓ5	2006-8403-01		Lead wire Blue	φ0.08/7 wires ℓ=27mm	1
ℓ34	2006-8403-01		Blue	φ0.08/7 wires ℓ=20mm	1
①	2006-4260-01		Isolation tape-A 絶縁紙 A	t=0.1 15X4.5mm	1

■ The R4 is excluded on the Flexible circuit base plate set

■ R4は0403（フレキセット）には含まれません。

R4	9422-2036-39	Fixed resistor (for adjustment)	1/8W 20KΩ	1
	9422-2236-39		1/8W 22KΩ	
	9422-2436-39		1/8W 24KΩ	
	9422-2736-39		1/8W 27KΩ	
	9422-3036-39		1/8W 30KΩ	
	9422-3336-39		1/8W 33KΩ	
	9422-3936-39		1/8W 39KΩ	
	9422-4736-39		1/8W 47KΩ	
	9422-5636-39		1/8W 56KΩ	
	9422-6836-39		1/8W 68KΩ	
	9422-1046-39		1/8W 100KΩ	
	9422-2046-39		1/8W 200KΩ	

※ 1. When HIC (2006-4304-02) with no lead wire ℓ34 is replaced with a type after -03, the soldering position of ℓ34 should be different. (Refer to P.46 - 48.)

※ 2. Since the shutter block is grounded to ⊖ of power supply, X earth plate (2204) and lead wire ℓ20 are not needed and have discontinued. (Allowable to remove.)

※ 3. New type of 2019-0580 has been modified so that it can be grounded to ⊖ of power supply from magnet base plate. So, earth wire (Black) has been discontinued.

※ 4. Shutter block is grounded to ⊖ power supply the same as in *2 . So, ℓ14 is not needed and has been discontinued. (Allowable to remove.)

※ 5. For bodies of which (inclined) indication cannot be adjusted by R8, lead wire (ℓ24) is used instead of R8.

※ 6. In bodies at the initial stage of massproduction, the positions of ℓ2 and ℓ19-2 are opposite to those in this wiring diagram. (If AM switch is in normal conditions, there is no problem of positions.)

※ 7. In the case of Black body, the top cover connot be gounded to ⊖ of power supply. Therefore, CdS circuit base plate (2006-0596) with earth contact and lead wire ℓ23 are required. (For discontinuance of contact, refer to P.25)

※1. リード線ℓ34の取付いていないタイプのHIC (2006－4304－02) を－03以降のタイプに交換する場合はℓ34の半田付箇所が異なります。(P.46～48参照)

※2 シャッターブロックは前枠にアースされているため、Xアース板 (2204) 及びリード線ℓ20は不要で途中より廃止されています。(取外してもよい)

※3 2019－0580の新タイプは、マグネット台板から直接前枠にアースできるように変更されていますので、アース線 (黒) は廃止されています。

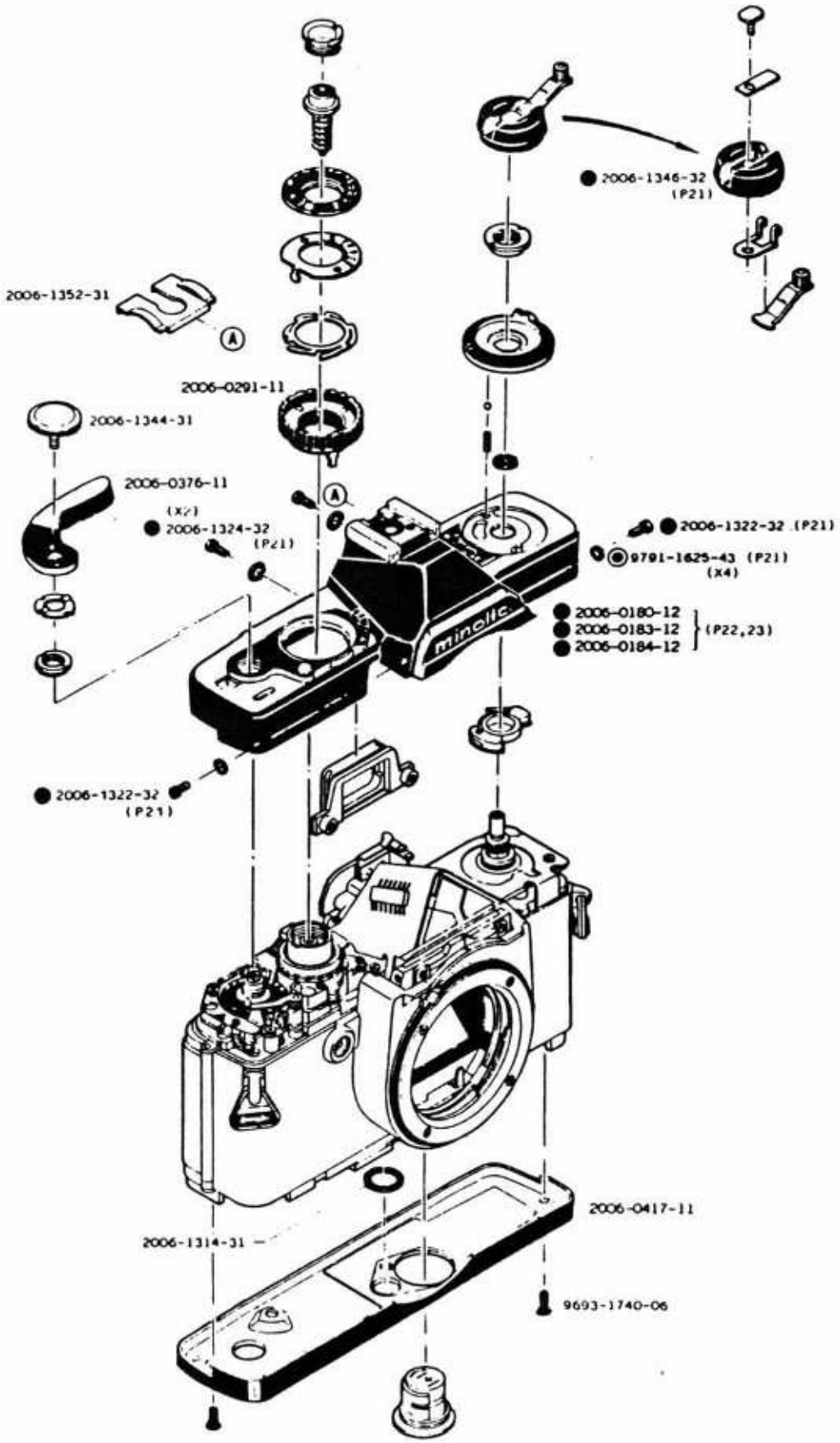
※4 ※2同様にシャッターブロックが前枠にアースされているため、ℓ14は不要で途中より廃止されています。

※5 表示 (知き) 調整でR8で調整しきれないボデーは、R8のかわりにリード線 (ℓ24) が使用されています。

※6 最産当初のボデーはℓ2とℓ19－2の位置がこの配線図とは逆になっています。(AM SW.が正常であれば位置は関係ありません)

※7 ブラックボデーは上カバーにアースができないため、アース接片付きのCds基板 (2006－0596) とリード線ℓ23が必要です。(コンタクト接片を廃止する場合は、P.25参照)

XG 7 CODE No. 2006-200
XG 2 CODE No. 2006-400
XG-E CODE No. 2006-600



Lead wires list

Symbol	Part No.	Color	Typ.	Qty.
ℓ1	2006-8401-01	Yellow	ϕ0.08/7 wires ℓ=70	1
ℓ2	2006-8402-01	Brown	ϕ0.08/7 wires ℓ=70	1
ℓ3	2006-8403-01	Blue	ϕ0.08/7 wires ℓ=45	1
ℓ4	2006-8404-01	Orange	ϕ0.08/7 wires ℓ=40	1
ℓ5	2006-8403-01	Blue	ϕ0.08/7 wires ℓ=27	1
ℓ6	2006-8406-01	Grey	ϕ0.08/7 wires ℓ=110	1
ℓ7	2006-8403-01	Blue	ϕ0.08/7 wires ℓ=118	1
ℓ8	2006-8408-01	Pink	ϕ0.08/7 wires ℓ=75	1
ℓ9	2006-8409-01	White	ϕ0.08/7 wires ℓ=85	1
ℓ10	2006-8401-01	Yellow	ϕ0.08/7 wires ℓ=95	1
ℓ11	2006-8411-01	Red	ϕ0.08/7 wires ℓ=110	1
ℓ12	2006-8402-01	Brown	ϕ0.08/7 wires ℓ=100	1
ℓ13	2006-8413-01	Purple	ϕ0.08/7 wires ℓ=100	1
ℓ16	2006-8404-01	Orange	ϕ0.08/7 wires ℓ=115	1
ℓ17	2006-8417-01	Green	ϕ0.08/7 wires ℓ=144	1
ℓ18	2006-8411-01	Red	ϕ0.08/7 wires ℓ=60	1
ℓ19-2 ℓ19-1	2006-8417-01	Green	ϕ0.08/7 wires ℓ=65	2
ℓ21	2006-8409-01	White	ϕ0.08/7 wires ℓ=40	1
ℓ22	2006-8417-01	Green	ϕ0.08/7 wires ℓ=50	1
ℓ23	2006-8414-01	Black	ϕ0.08/7 wires ℓ=30	1
ℓ32	2006-8411-01	Red	ϕ0.08/7 wires ℓ=150	1
ℓ33	2006-8403-01	Blue	ϕ0.08/7 wires ℓ=150	1
ℓ34	2006-8403-01	Blue	ϕ0.08/7 wires ℓ=20	1
ℓ14	2006-8414-01	Black	ϕ0.08/7 wires ℓ=105	1
ℓ20	2006-8414-01	Black	ϕ0.08/7 wires ℓ=65	1

Above lead wires are supplied per meter

上記リード線の供給は 1m 単位とします。

Part No.	Part Name		Qty
2006-0180-12	Top cover set for XG7	XG 7用上カバーセット	1
2006-0183-12	Top cover set for XG2	XG 2用上カバーセット	1
2006-0184-12	Top cover set for XG-E	XG-E 用上カバーセット	1
2006-0291-11	Shutter speed dial/Function selector	シャッターダイヤルセット	1
2006-0376-11	Winding lever set	巻上レバーセット	1
2006-0417-11	Bottom cover set	下カバーセット	1
2006-1314-31	Washer	三脚ネジバスキングワッシャー	1
2006-1322-32	Screw-A	特殊止めビスA	2
2006-1324-32	Screw-B	特殊止めビスB	2
2006-1344-31	Winding lever pressure	巻上レバー押え	1
2006-1346-32	Rewinding knob	巻戻しノブ	1
2006-1352-31	Accessory shoe spring	アクセサリーシューバネ	1
9693-1740-06	Phillips type tapping screw	十字穴付タッピンねじ	2
9791-1625-43	Washer	薄ワッシャー	4

The details of modifications of parts provided with ● or ● in pages 1 through 19 are explained in the following.

1. They are classified into Types A~B or Types A~D according to the frequency of modifications, and the differences are mentioned in tables.
2. The parts are interchangeable with other types only when they come in a set with the relative parts of each type.
3. When there are relative parts to be modified, the part cannot be individually modified to other type. The relative parts must also be modified to make set part.
4. For parts of previous type which cannot be supplied, (×) is attached to the tail of the part number in the table. If it is necessary to modify the (×)-marked part, replace it with other type.

以下のページはP. 1～18で●印，又は●印のついている部品の変更内容等について説明してあります。

1. 変更の回数によってType A~B，又はType A~Dのように分け，各タイプごとの違いを表の形式で記載しています。
2. その部品のみの変更でなく，関連する変更部品がある場合は表の縦の列で関連変更部品を示しています。
3. 関連変更部品がある場合は，その部品単独では他のタイプに交換できません。他のタイプに交換する場合は，関連変更部品もセットで交換して下さい。
4. 旧タイプの部品で供給できない部品には，表中の部品番号の後に（×）の印をつけてあります。（×）印の部品で交換の必要が生じた時は他のタイプに交換して下さい。

1. Shutter release button / シャッター釦

● Do not use Type A for bodies with Type B attached. (It may cause shortcircuit.)

● Type Bの取付けられているボデーにはType Aは使用しないこと（ショートする場合があるため）。

Type A	Type B
2006-0281-02	2006-0281-81

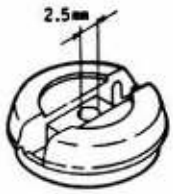
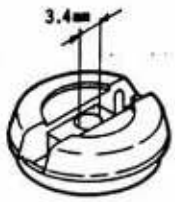
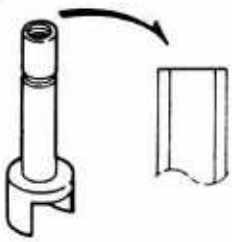
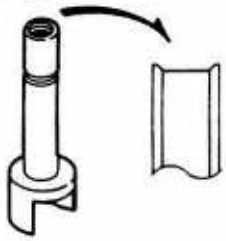
2. Self-timer indication / セルフ指標板

Type A	Type B
2006-1017-01 (×)	2006-1017-04 Cut off the boss to change it into Type A. ボスを削り取ればType Aになる

2006-0281 Shutter release button set シャッター釦セット
2006-1017 Self-timer indication plate セルフ指標板

3. Rewinding knob / 巻戻しノブ

- Only 2006-3304-~~01~~ 02 can be individually used for Type A.
- 2006-3304-~~01~~ 02のみ単独でType Aに使用可能です。

Type A	Type B
2006-3301-02 (×) 2006-1346-31 (×)……Black type 	2006-3301-04 2006-1346-32……Black type 
2006-3303-02 	2006-3303-03
2006-3304-01 (×) 	2006-~~3303-03~~ ~~3304~~-02 
2006-3311-01 	2006-3311-03

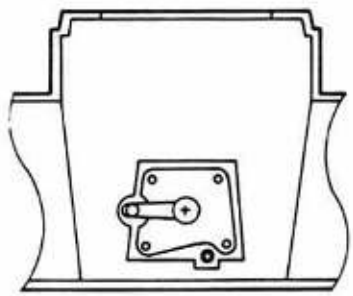
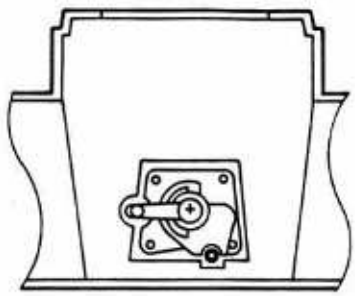
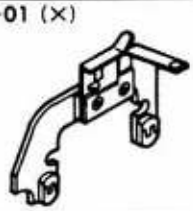
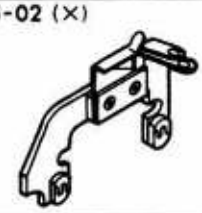
4. Screw (for black type only) / 特殊止めビス(ブラックタイプ専用)

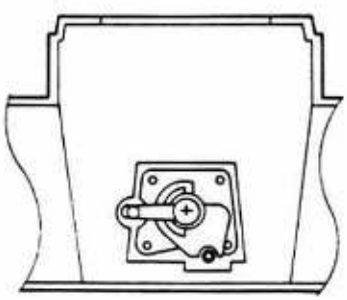
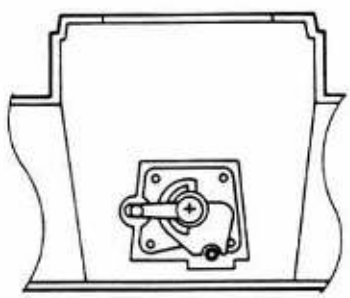
Type A	Type B
2006-1322-31 2006-1324-31 (×) 2006-1324-81 	2006-1322-32 2006-1324-32
9791-1625-43 (Washer) 	Not used. 使用しない

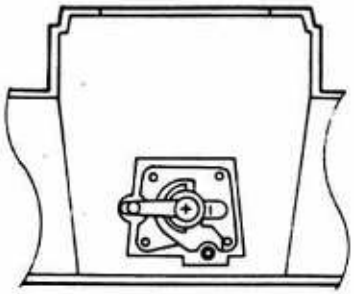
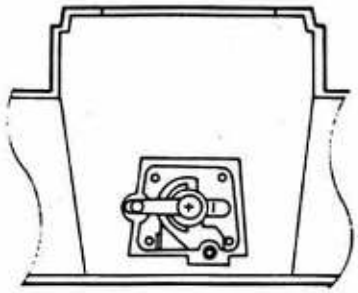
2006-1346 / 2006-3301 Rewinding knob 巻戻しノブ
2006-3303 Rewinding handle spring 巻戻しハンドルバネ
2006-3304 Winding lever friction 巻上レバーフリクション
2006-3311 Rewinding knob screw 巻戻しノブビス
2006-1322 Screw-A 特殊止めビスA
2006-1324 Screw-B 特殊止めビスB

5. Top cover set, CdS P.C. board / 上カバーセット, CdS基板

- Type D is not used for the products, but is supplied as servicing part. When replacing Types A~C with Type D, refer to P. 25.
- For the modification of each part of contacts, refer to P. 23~24.
- Type Dは製品には使用されていませんが, サービス用部品として供給します。Type A~CをType Dに交換する場合はP. 25を参照して下さい。
- コンタクト接点部の変更内容はP. 23~P. 24を参照して下さい。

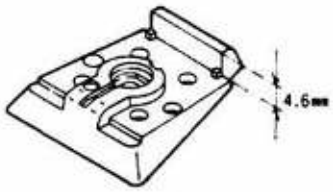
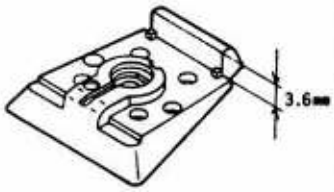
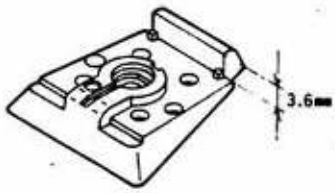
Type A	Type B
2006-0130-01 (×) 2006-0133-01 (×) 2006-0134-01 (×)	2006-0130-02 (×) 2006-0133-02 (×) 2006-0134-02 (×)
	
2006-0595-01 (×)	2006-0595-02 (×)
	

Type C	Type C (Black)
2006-0130-03 2006-0133-03 2006-0134-03	2006-0180-12 2006-0183-12 2006-0184-12
	
2006-0595-03	2006-0596-01

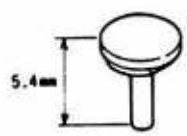
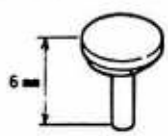
Type D	Type D (Black)
2006-0130-03 2006-0133-03 2006-0134-03	2006-0180-12 2006-0183-12 2006-0184-12
	
2006-0596-02	2006-0596-02

6. Contact (continued to next page) / コンタクト接点 (次ページに続く)

- Types A~D stand for Types A~D of top cover set mentioned in the previous section.
- Type A~Dは前項上カバーセットのType A~Dを示しています。

Type A	Type B. C	Type D
2006-0132-01	2006-0132-02	2006-0132-03
		
● 2006-9246-02 is set. ● 2006-9246-02がセットされている	● 2006-9246-02 is set. ● 2006-9246-02がセットされている	● 2013-9246-01 is set. ● 2013-9246-01がセットされている
2006-9246-02		2013-9246-01
	Type A is used. Type Aを使用	

2006-0130 (0180) Top cover set for XG 7 XG 7用上カバーセット
2006-0133 (0183) Top cover set for XG 2 XG 2用上カバーセット
2006-0134 (0184) Top cover set for XG-E XG-E用上カバーセット
2006-0595 / 2006-0596 CdS circuit base plate set CdS基板セット
2006-0132 Accessory shoe base set アクセサリーシュー座セット
2006-9246 / 2013-9246 Contact-B コンタクト接点B

Type A	Type B, C	Type D
2006-1054-02 Thickness : 1.2mm 厚み : 1.2mm	2006-1054-03 Thickness : 1mm 厚み : 1mm	Types B and C are used. Type B, Cを使用
2006-1061-01 	2006-1061-02 	Types B and C are used. Type B, Cを使用
2006-1062-01 	2006-1062-02 	Types B and C are used. Type B, Cを使用
Not used. 使用しない	2006-1068-01 	2013-1068-01
Not used. 使用しない	2006-1069-02 	Types B and C are used. Type B, Cを使用
2006-9245-03  	2006-9245-04  	Types B and C are used. Type B, Cを使用
Not used. 使用しない	9798-3155-87 (Washer) 	Types B and C are used. Type B, Cを使用
Not used. 使用しない	Not used. 使用しない	2006-1338-01 (Black only)

2006-1054 Accessory shoe set plate アクセサリーシュー取付板
2006-1061 Contact-D コンタクト接点D
2006-1062 Contact operation pin コンタクト接片連動ピン
2006-1068 / 2013-1068 Contact-E コンタクト接片E
2006-1069 Contact isolation sheet コンタクト絶縁シート
2006-1338 Contact earth plate コンタクト接片アース板

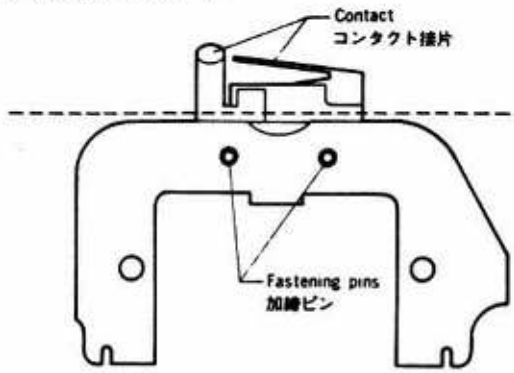
■Contact improving procedure / コンタクト接片改造要領

When replacing the top cover set Types A~C of P. 22 with Type D (or replacing only the relative parts of contact with Type D), it is necessary to modify the way of finishing (replacing) or CdS P.C. board set mentioned below and the lead wiring method.

P.22のType A~Cの上カバーセットをType Dに交換する場合（又はコンタクト接片関連部品のみをType Dに交換した場合）は以下に示すCdS基板セットの加工（又は交換）及びリード線の配線方法の変更が必要になります。

1. Drill the fastening pins of CdS P.C. board set and remove the contact. Also, cut off the part above the dotted line by nippers. (It is also allowable to replace it to Type D (2006-0596-02)).

   CdS基板セットの加締ピンにドリルを通してコンタクト接片を取外す。又は点線部より上側をニッパーで切り取る（又はType D (2006-0596-02) に交換してもよい）。



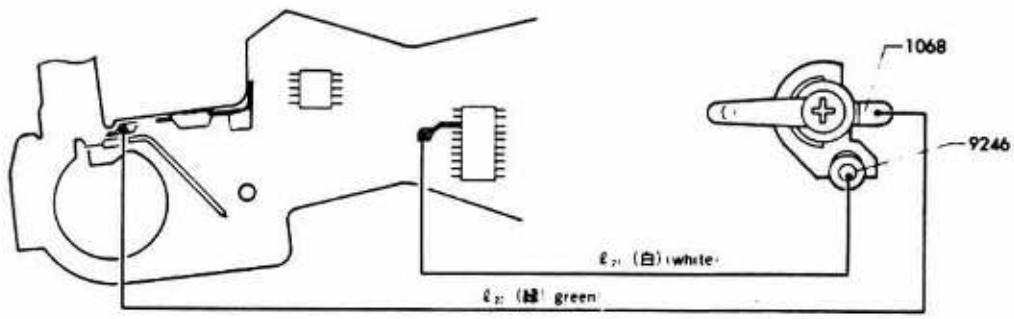
2. Replace the lead wire ℓ_{21} (white) and ℓ_{22} (green) with those 25~30 mm longer.
   - In the case of black body, replace ℓ_{23} (black) with a longer one as well.

   リード線ℓ_{21}（白）、ℓ_{22}（緑）をそれぞれ25~30mm長いものに交換する。
   - ブラックボデーの場合はℓ_{23}（黒）も長いものに交換すること

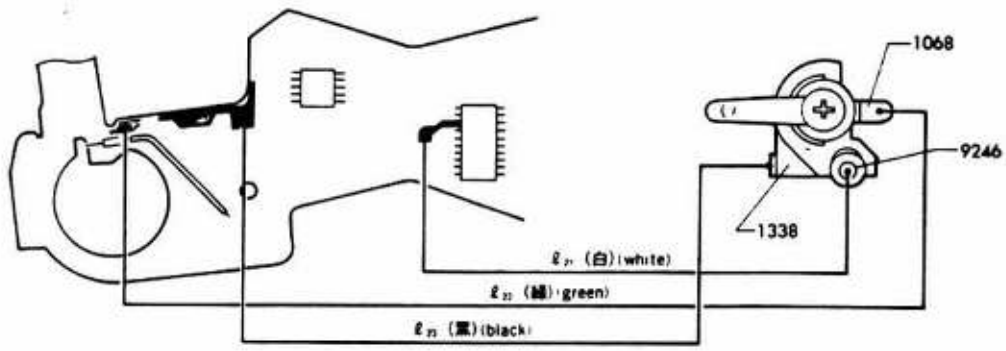
3. Connect each lead wire.

   各リード線を配線する。

■Wiring for silver body / シルバーボデー用配線



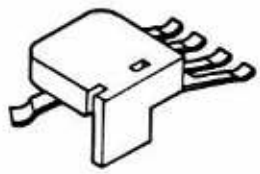
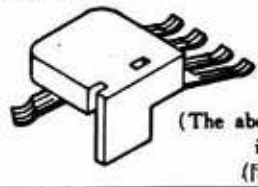
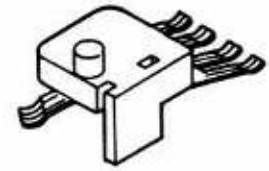
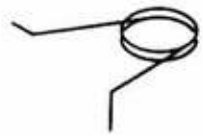
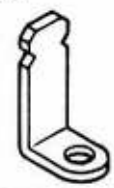
■Wiring for black body / ブラックボデー用配線



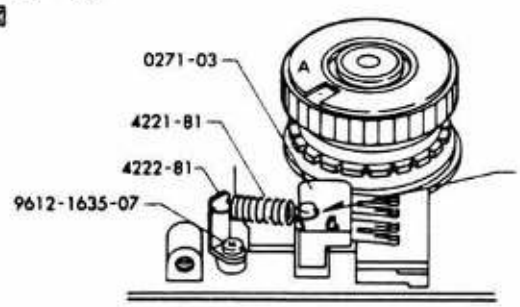
7. AM change holder / AM切換SW. ホルダー

- 4221 and 4222 of Type C are parts for servicing only.
- Regarding bodies using Type A, those with defective AM change holder must be replaced with Type B or C.

- Type Cの4221, 4222はサービス専用部品です。
- Type A使用のボデーでAM SW.の接触が悪いものはType B, 又はCに交換して下さい。

Type A	Type B	Type C
2006-0271-01 (×) 	2006-0271-02 (×) or 2006-0271-03  (The above is -02.) (図は-02)	2006-0271-03 
2006-2012-01 (×) or 2006-2012-02 (×) 	2006-2012-04 	Either Type A or B can be used. Type A, 又はBのどちらを使用しても良い
Not used. 使用しない	Not used. 使用しない	2006-4221-81
Not used. 使用しない	Not used. 使用しない	2006-4222-81 
9612-1628-07 (Screw) (For shutter dial base plate.) (シャッターダイヤル台板取付用) Length : 2.8mm 長さ : 2.8mm	Type A is used. Type Aを使用	9612-1635-07 (Screw) (For shutter dial base plate.) (シャッターダイヤル台板取付用) Length : 3.5mm 長さ : 3.5mm

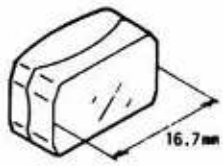
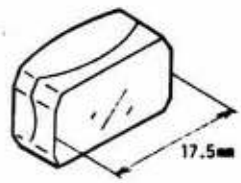
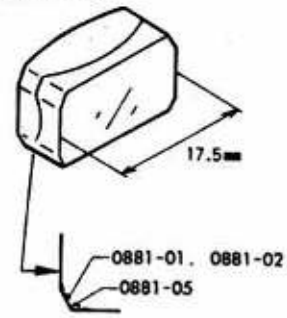
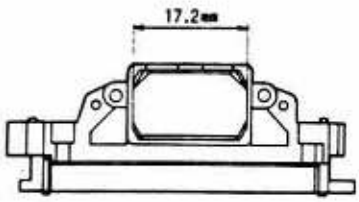
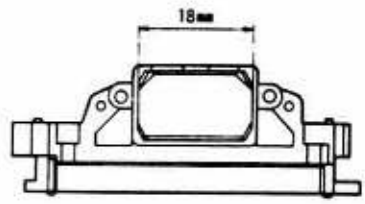
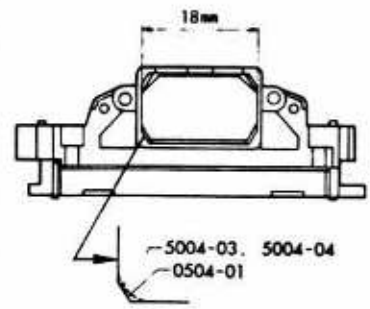
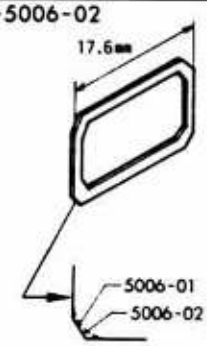
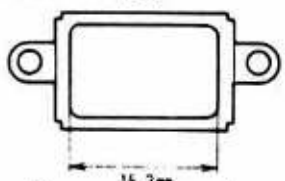
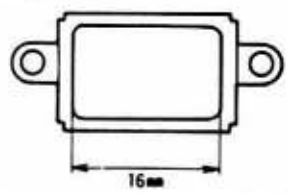
■ Type C mounting diagram
■ Type C取付け図



2006-0271	AM change holder set	AM切換ホルダーセット
2006-2012	AM change spring	AM切換スプリング
2006-4221	SW. 8 sub spring	SW. 8補助スプリング
2006-4222	Spring hanger	SW. 8補助スプリング掛け

8. Penta holder 1 (related to eyepiece modification)
ペンタホルダー1 (接眼レンズ変更の関連)

- Note that 2006-5004 and 0504 are also related with parts other than those mentioned on this page. (Refer to P. 28~30.)
- 2006-5004, 0504はこのページ以外の部品との関連もありますので注意して下さい。(P.28~P.30参照)

Type A	Type B, B′	Type C
2006-0881-01 (X) 	2006-0881-02 	2006-0881-05 
2006-5004-03 	2006-5004-04 (B) or 2006-5004-05 (B′) 	2006-0504-01 
Not used. 使用しない	2006-5006-01 	2006-5006-02 
2006-5008-02 (X)  Type B can be used.	2006-5008-03 	Type B, B′ is used. Type B, B′を使用

2006-0881	Eye-piece lens set	接眼レンズセット
2006-0504	Penta. holder set	ペンタホルダーセット
2006-5004	Penta. holder	ペンタホルダー
2006-5006	Eye-piece lens light shield frame	接眼レンズ遮光枠
2006-5008	Eye-piece lens pressure	接眼レンズ押え

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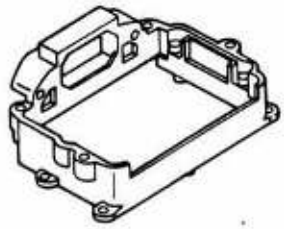
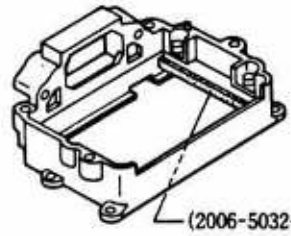
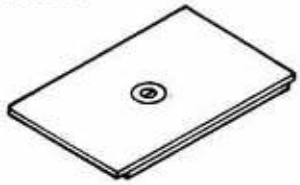
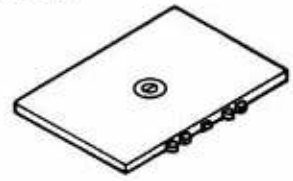
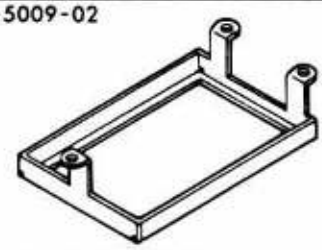
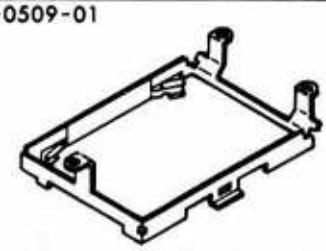
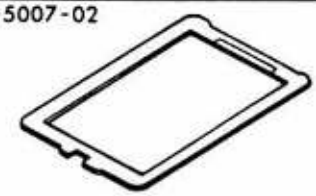
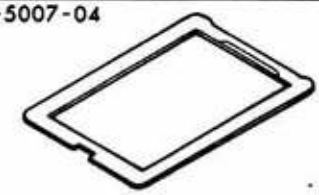
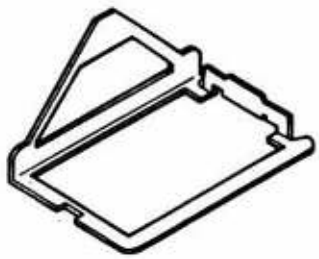
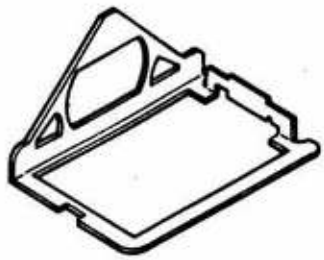
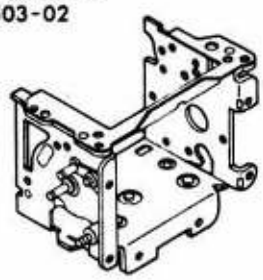
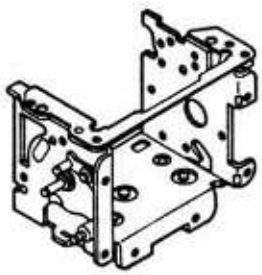
9. Penta holder 2 (related with fresnel modification)
ペンタホルダー2 (焦点板変更の関連)

- Note that 2006-5004 and 0504 are related with parts other than those mentioned on this page. (Refer to P.27 and 30.)
- 2006-0503 is also related with other parts. (Refer to P. 36.)
- 2006-5004, 0504はこのページ以外の部品との関連もありますので注意して下さい。(P.27, P.30参照)
- 2006-0503も他の部品との関連があります。(P.36参照)

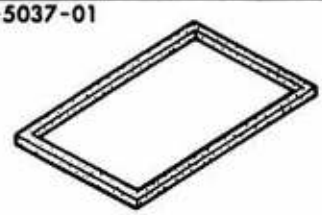
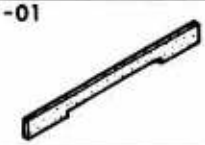
Type A, B, B′	Type C
2006-5004-03 or 2006-5004-04 or 2006-5004-05 	2006-0504-01  Addition (2006-5032-01)…新設
2006-5805-04 	2006-5805-06 
2006-5009-02 	2006-0509-01 
2006-5011-01 	2006-5011-02
2006-5007-02 	2006-5007-04 
2006-5013-02 	2006-5013-03

Continued to next page.
次ページに続く

Type A, B, B′	Type C
2006-5005-01  ● Type C can be used. Type C使用可能	2006-5005-04 
2006-0503-01 or 2006-0503-02 	2006-0503-03 
2006-5003-01 	Not used. 使用しない
2006-5010-01 	Not used. 使用しない

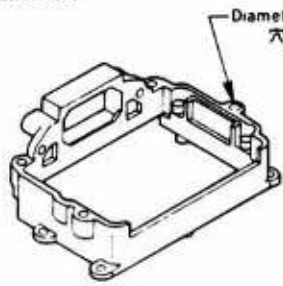
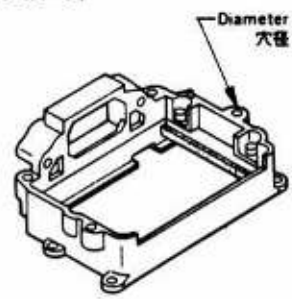
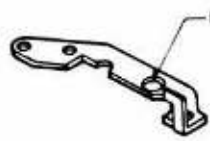
Continued to next page.
次ページに続く

2006-0504	Penta. holder set ペンタホルダーセット
2006-5004	Penta. holder ペンタホルダー
2006-5003	Penta. holder shield plate ペンタホルダー防曇板
2006-5005	Penta. receiver ペンタ受け
2006-5007	Scale plate 目盛板
2006-5009	Fresnel lens holder 焦点板ホルダー
2006-5010	Fresnel lens frame 視野枠
2006-5011	Fresnel lens pressure spring 焦点板押えスプリング
2006-5013	Fresnel lens holder spring 焦点板ホルダースプリング
2006-5032	Packing-B 防曇モルトプレンB
2006-5805	Fresnel lens 焦点板

Type A, B, B'	Type C
2006-5037-01 	Not used. 使用しない
Not used. 使用しない	2006-5024-01
Not used. 使用しない	2006-5031-01 

10. Penta holder 3 (related with penta. pressure modification)
ペンタホルダー3 (ペンタ押え板変更の関連)

- Note that 2006-5004 and 0504 are related with parts other than those mentioned on this page. (Refer to P. 27~29.)
- 2006-5004, 0504はこのページ以外の部品との関連もありますので注意して下さい。(P.27~P.29参照)

Type A, B	Type B', C
2006-5004-03 or 2006-5004-04 	2006-5004-05 or 2006-0504-01 
2006-5014-02 	2006-5014-03
9693-2040-07 (Screw) (For 5014 fitting.) (5014取付用) Screw diameter : 2mm ねじ径 : 2mm	9693-1740-07 (Screw) (For 5014 fitting.) (5014取付用) Screw diameter : 1.7mm ねじ径 : 1.7mm

2006-0504 Penta. holder set ペンタホルダーセット
2006-5004 Penta. holder ペンタホルダー
2006-5014 Penta. pressure (Left side) ペンタ押え板 (左)
2006-5024 Packing-C 防塵モルトプレンC
2006-5031 Packing-A 防塵モルトプレンA
2006-5037 Finder packing ファインダー防塵片

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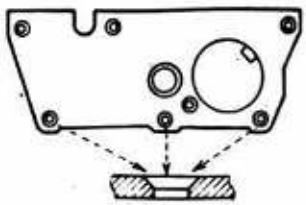
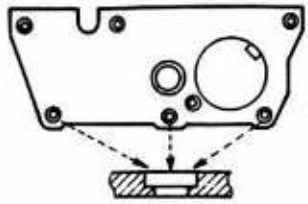
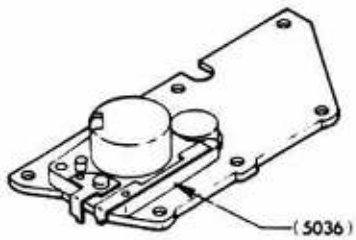
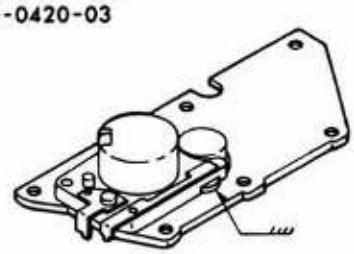
11. Battery case base plate 1 (For Type C, refer to next page.)
電池ケース台板1 (Type Cは次ページ参照)

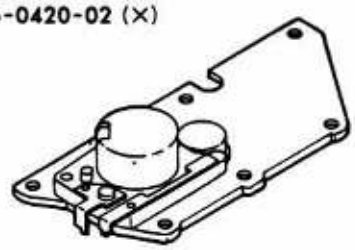
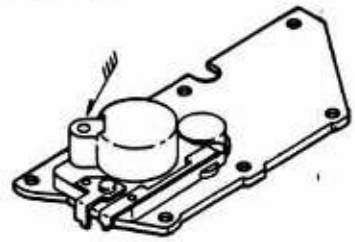
Type A	Type B, B', C
2006-0420-01 (×) 	2006-0420-02 (×) or 2006-0420-03 
9613-1640-01 (Screw × 3) (For 0420 fitting.) (0420取付用)	9611-1640-02 (Screw × 3) (For 0420 fitting.) (0420取付用)

12. Battery case base plate 2 / 電池ケース台板2

Type A, B	Type B', C
2006-0420-02 (×)  (5036)	2006-0420-02 (×) or 2006-0420-03 
(2006-5036-03) 	Not used. 使用しない

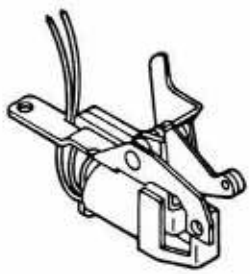
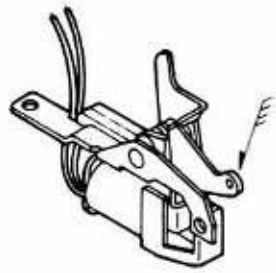
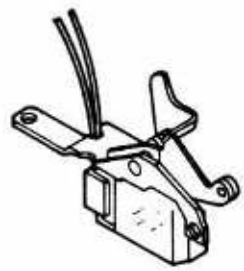
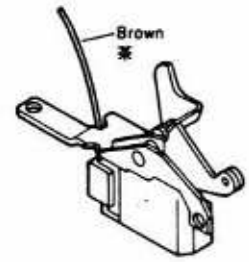
2006-0420 Battery case base plate set 電池ケース台板セット
2006-5036 Light shield sponge 光モレ防止片

13. Battery case base plate 3 (For Types A, B, and B', refer to P. 31)
電池ケース台板3 (Type A, B, B'についてはP.31も参照して下さい)

Type A, B, B'	Type C
2006-0420-01 (×) 2006-0420-02 (×) 	2006-0420-03 
(2006-4216-02) 	(2006-4216-04)
(2006-4218-01) 	Not used. 使用しない

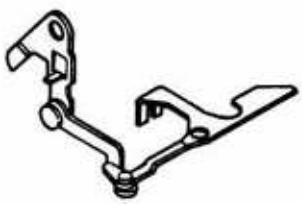
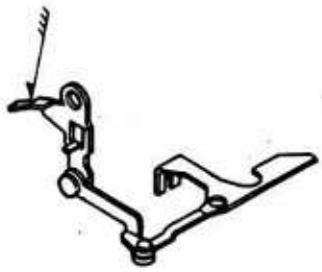
14. Release magnet / レリーズマグネット

- Pay attention to the combination with the release operation levers on next page according to the type of release magnet (with and without pin.)
- In Type D, earth wire (black) is discontinued, but in Types A~C, be sure to make the wiring of black lead.
- レリースマグネットの種類（ピンの有無）により、次ページのレリーズ連結レバーとの組合わせに注意して下さい。
- Type Dではアース線（黒）が不要になり廃止されていますが、Type A~Cは必ず黒リード線の配線を行って下さい。

Type A	Type B	Type C	Type D
2006-0580-04 	2006-0580-05 	2019-0580-11 	2006-0580-11 

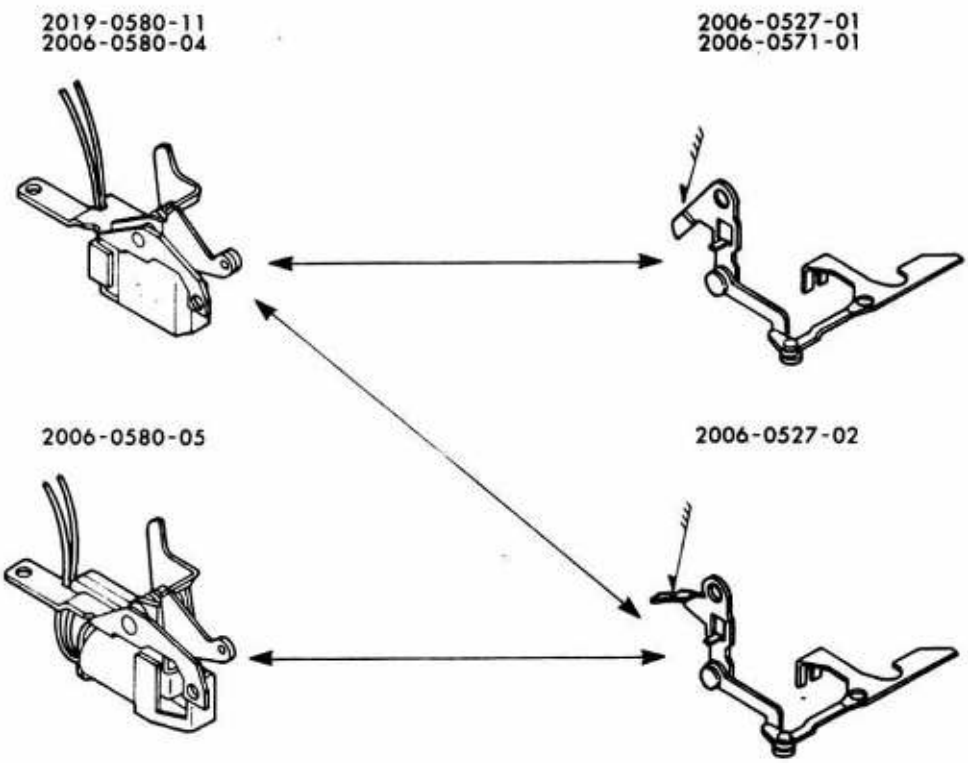
2006-0420	Battery case base plate set 電池ケース台板セット
2006-0580 2019-0580	MG 2 set MG 2セット
2006-4216	Plus side contact 電池ケース接片プラス側
2006-4218	Contact pressure 電池ケース接片押え

15. Release operation lever / レリーズ連結レバー

Type A	Type B	Type C
2006-0571-01	2006-0527-01 (×) 	2006-0527-02 
2006-0585-01		
9721-0120-13 (E ring)		

■Combination of release operation lever and release magnet (arrowmarked combinations must be used).

■レリーズ連結レバーとレリーズマグネットの組合わせ（矢印の組合わせで使用のこと）



2006-0527 Release operation lever-A set レリーズ連結レバーAセット
2006-0571 Release operation lever-C set レリーズ連結レバーCセット
2006-0585 Release operation lever-A set レリーズ連結レバーAセット

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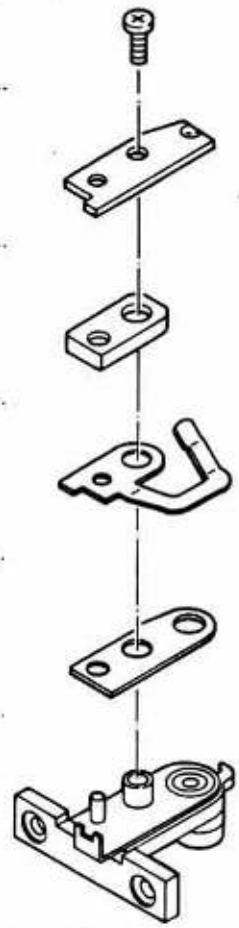
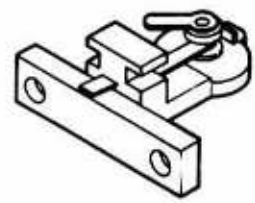
16. Remote control base plate / リモコン台板

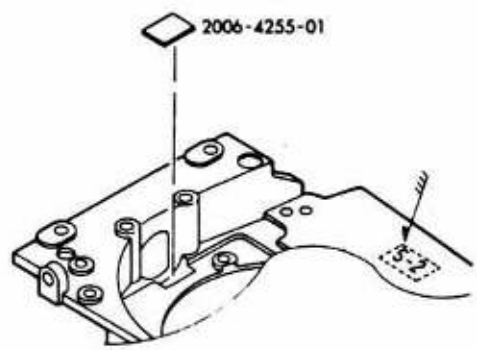
Type A	Type B
9692-1740-07 (Screw) 2006-4228-01 2006-4241-01 2006-4227-02 2006-4230-01 2006-0154-01	2006-0153-02 • According to the type of front base plate, 2006-4255 shown below must be used. • 前枠の種類によっては欄外に示す2006-4255を併用すること





• When Type B is combined with front base plate of which the arrow-marked part number begins with 1~5, 2006-4255 is required.

• 下図矢印部の最初の数字が1～5の前枠とType Bを組合わせる場合は2006-4255が必要です。



2006-0153 2006-0154	Remote control base plate set　リモコン台板セット
2006-4227	Remote control contact-B　リモコン接片B
2006-4228	Remote control contact-C　リモコン接片C
2006-4230	Contact isolation plate-A　リモコン接片絶縁板A
2006-4241	Contact isolation plate　リモコン接片絶縁板
2006-4255	Tape-A　テープA

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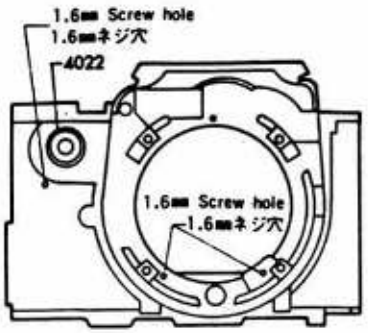
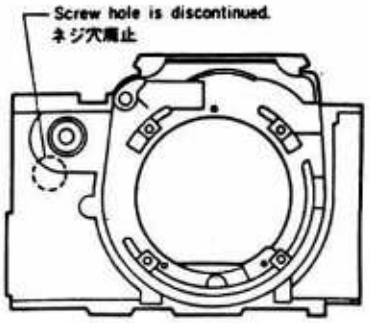
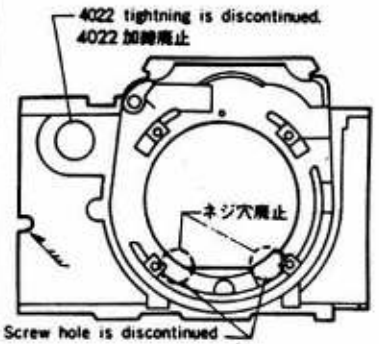
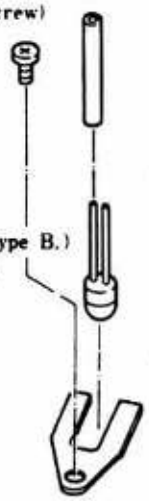
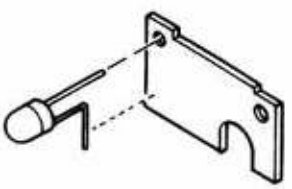
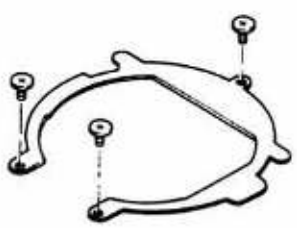
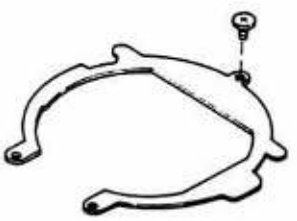
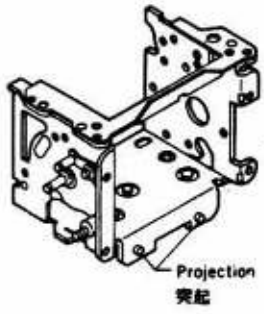
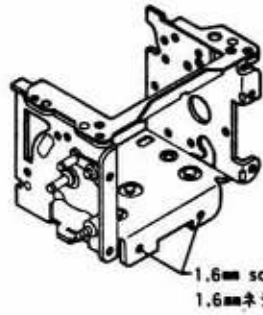
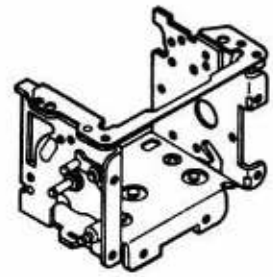
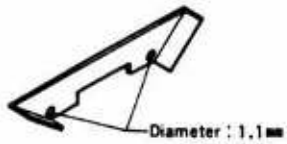
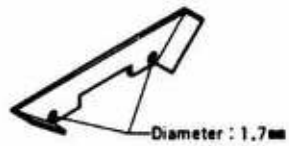
17. Front base plate / 前　枠

Type A	Type B	Type C
2006-0151-01 	2006-0151-02 	2006-0151-05 
2006-4252-81 9612-1616-07 (Screw)  LED (Can be change to type B.) (Type B に変更可能) 2006-4021-01		Same as Type B. Type B と同じ
(Tightened to 0151.) (0151に加締)	(Tightened to 0151.) (0151に加締)	2006-4022-02
9612-1616-07 (Screw × 3) 	Same as type A. Type A と同じ	9612-1616-07 (Screw × 1) 

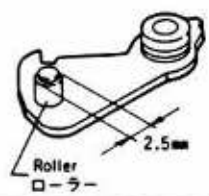
2006-0151　Front base plate set　前枠セット
2006-4021　L.E.D. fixed plate　セルフ表示LED固定板
2006-4022　Self timer indication reflector　セルフ表示反射環
2006-4252　L.E.D. tube　LED絶縁チューブ

18. Mirror box / ミラーボックス

Type A	Type B	Type C
2006-0503-01  	2006-0503-02  	2006-0503-03 
2006-5019-01  	2006-5019-02  	Type B is used. Type Bを使用
Not used. 使用しない	9611-1616-12 (Screw × 2) (For 5019 fitting.) (5019取付用)	Type B is used. Type Bを使用
Parts related with fresnel lens modification (Type A, B, or B' on P. 28~30) must be used. 焦点板変更の関連部品 (P. 28~P. 30) のType A, B, 又はB'を使用すること。		Type C parts on P. 28~30 must be used. P. 28~P. 30のType Cを使用すること。

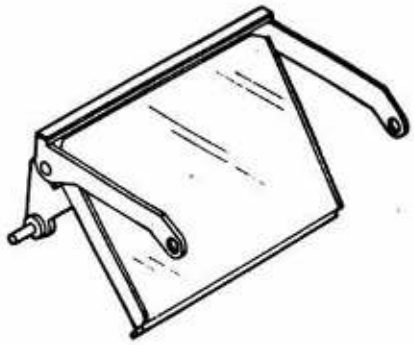
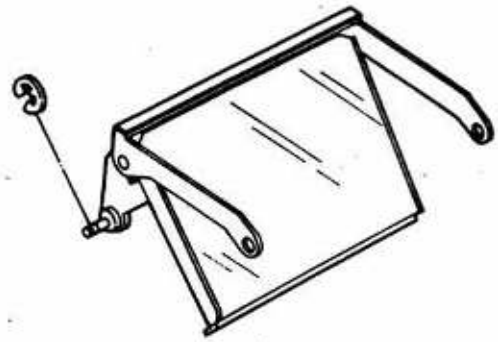
19. Mirror return lever lock claw set / ミラー戻しレバーロック爪セット

- When replacing 2006-0522, select the part from the table below according to the type of shutter unit. (Refer to the XG series shutter parts list.)
- 2006-0522交換時はシャッターユニットのタイプ (XG系シャッターパーツリスト参照) により、下表より選んで下さい。

Type A	Type B	Type C	Type D
2006-0522-01 	2006-0522-02 (×) 	2006-0522-02 (×)  	2006-0522-03
For 1, 2, and 2' type shutters 1, 2, 2'型シャッター用	For 3, 3' and 4 type shutters 3, 3', 4型シャッター用		

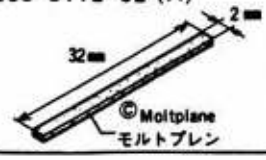
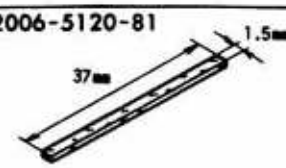
2006-0503 Mirror box set ミラーボックスセット
2006-0522 Mirror return lever lock claw set ミラー戻しレバーロック爪セット
2006-5019 Mirror box apron ミラーボックスエプロン

20. Mirror holder / ミラーホルダー

Type A	Type A′	Type B	Type B′
2006-0558-01 		2006-0558-02 9721-0080-13 (E-ring) 	
2006-5116-02 Thickness : 0.6mm 厚み : 0.6mm	2006-5116-03 Thickness : 0.6mm 厚み : 0.6mm	2006-5116-04 Thickness : 0.6mm 厚み : 0.6mm	2006-5116-05 Thickness : 0.4mm 厚み : 0.4mm
9791-2140-50 (Washer 0.1mm) or 9792-2140-40 (Washer 0.2mm) or 9793-2140-20 (Washer 0.3mm)		9792-2140-40 (Washer 0.2mm)	9794-3858-20 (Washer 0.4mm)
● Choose one of these so that 5116 looseness is minimized. ● 5116のガタが最小になるようにいずれかを選ぶ			
2006-0521-01	Type A is used. Type Aを使用	Type A is used. Type Aを使用	2006-0521-02
2006-5117-02	2006-5117-04	Type A′ is used. Type A′を使用	Type A′ is used. Type A′を使用

2006-0521	Mirror operation lever set	ミラー操作レバーセット
2006-0558	Mirror holder set	ミラーホルダーセット
2006-5116	Mirror operation lever-B	ミラー作動レバー
2006-5117	Mirror operation lever spring	ミラー操作レバースプリング

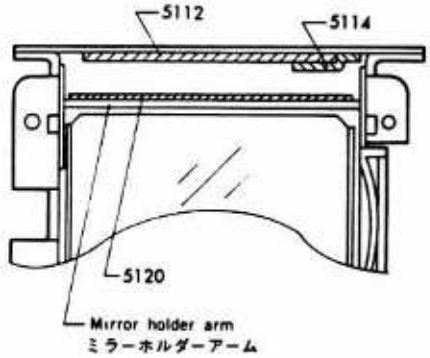
21. Mirror cushion / ミラークッション

Type A	Type B	Type C	Type D
2006-5112-02 (×) 	Type A is used. Type Aを使用	2006-5112-03 	Type C is used. Type Cを使用
Not used. 使用しない	2006-5114-81 (×) 	2006-5114-01 	Type C is used. Type Cを使用
Not used. 使用しない	Not used. 使用しない	Not used. 使用しない	2006-5120-81 

- For mirror bounce in bodies of Type A or B, follow the procedure given below. (For example, once the cause of trouble has been eliminated, it is unnecessary to follow the procudure any more.)
- Type A, 又はBのボデーでミラーバウンドが発生しているものについては，以下の順序で処置して下さい。
  (例えば①で直れば②以降，②で直れば③以降の処置は不要です)

① Replace 5112 and 5114 with Type C.
② Stick 5120-81. (Confirm the returning of mirror when shutter releases at the "B" setting with the body up-side-down, after bond the mirror arm cushion on the mirror holder arm.)
③ Replace 5042 (see next section) with Type B.
④ Replace 5042 and 0523 (see next section) with Type C.

① 5112, 5114をType Cに交換する。
② 5120-81を貼付ける （貼付後，ボデーを上下逆にし，Bでレリーズした時ミラーが復帰することを確認する）
③ 5042（次項参照）をType Bに交換する。
④ 5042, 0523（次項参照）をType Cに交換する。



2006-5112 Mirror cushion ミラークッション
2006-5114 Mirror cushion-B ミラークッションB
2006-5120 Mirror arm cushion ミラーアームクッション

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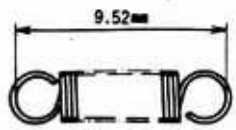
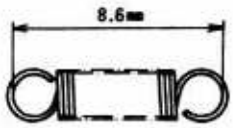
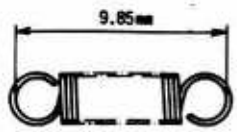
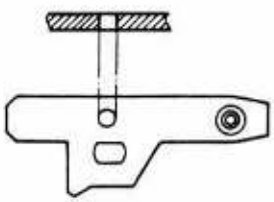
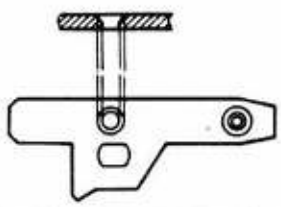
22. Preset operation lever / プリセット連動レバー

Type A	Type B	Type C
2006-0523-01	Type A is used. Type Aを使用	2006-0523-02
2006-5042-02  Wire diameter : 0.26㎜ No. of windings : 21.5 線径 : 0.26㎜ 巻数 : 21.5	2006-5042-03  Wire diameter : 0.23㎜ No. of windings : 19.5 線径 : 0.23㎜ 巻数 : 19.5	2006-5042-04  Wire diameter : 0.23㎜ No. of windings : 23.5 線径 : 0.23㎜ 巻数 : 23.5

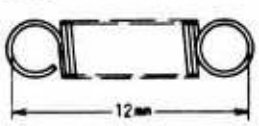
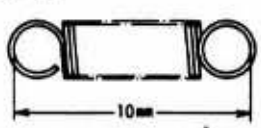
23. Operation lever-B base (right) / ミラー操作レバーB軸台(右)

- Type B is used for deformed mirror box.
- Type Bはミラーボックス変形品の救済用です。

Type A	Type B
2006-0561-01 	2006-0561-81 

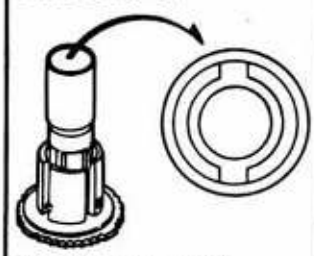
24. Release lever spring / ミラーレリーズレバースプリング

- Type B is used when mirror return lever lock claw (0522) is unstable in stopping power (in order to increase the stopping power.) When Type B is used, be careful that 0522 should not unlock.
- Type Bはミラー戻しレバーロック爪 (0522) の係止力が不安定なものに使用されています (係止力を強くするため)。Type Bを使用した場合は0522の係止不解除に注意して下さい。

Type A	Type B
2006-5023-02 	2006-5023-82 

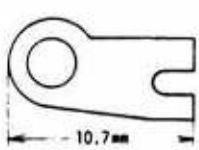
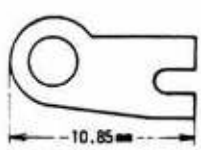
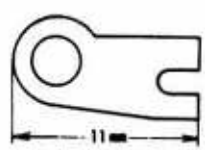
2006-0523 Preset operation lever set プリセット連動レバーセット
2006-0561 Operation lever-B base set ミラー操作レバーB軸台セット(右)
2006-5023 Release lever spring ミラーレリーズレバースプリング
2006-5042 Mirror-up spring ミラーアップスプリング

25. Spool gear / スプールギヤー

Type A	Type B	Type C	Type D
2006-0325-12	Type A is used. Type Aを使用	2006-0325-13	Type C is used. Type Cを使用
2006-3042-01  (Type B can be used.) (Type B 使用可能)	2006-3042-01	2006-3042-01 Type B is used. Type Bを使用 (Type C can be used.) (Type C 使用可能)	2006-3042-03 (Type B can be used.) (Type B 使用可能)

26. Winding stop gear / 巻止めレバー

- Types B and C are used for the adjustment of bodies of which the operation timing of winding claw and winding stop lever is not in correct order as shown below.
  [Correct timing when winding lever is slowly returned from the position of complete winding]
- Type B, Cは巻取爪と巻止めレバーの作動タイミングが，下図の順序になっていないボデーの調整用です。
  〔巻上げ完了状態から巻上げレバーをゆっくりと戻した時の正規タイミング〕

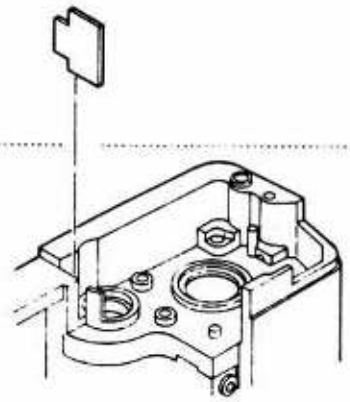
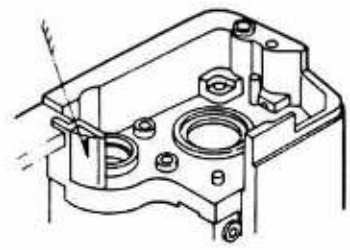
Type A	Type B	Type C
2006-3012-01 	2006-3012-81 	2006-3012-85 

2006-0325 Spool gear set スプールギヤーセット
2006-3012 Winding stop lever 巻止めレバー
2006-3042 Spool inner barrel スプール内筒

27. Reset lever / リセットレバー

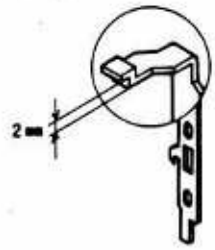
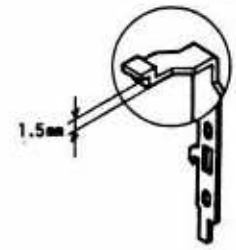
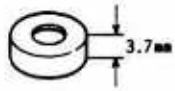
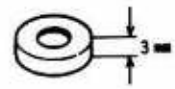
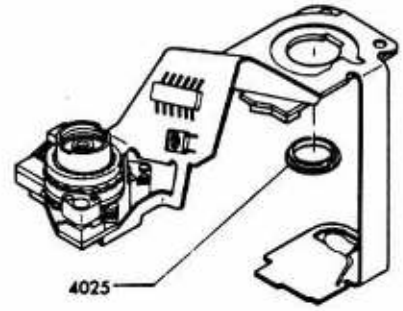
Type A	Type B
2006-3020-01	2006-3020-02
2006-9011-03	2006-9011-05
2006-9441-01	Not used. 使用しない

28. Light shield plate / 遮光片

Type A	Type B
2006-1066-01 	Not used. 使用しない 

2006-1066 Light shield plate 遮光片
2006-3020 Reset lever リセットレバー
2006-9011 Winding stop lever axis 巻止めレバー軸
2006-9441 Winding stop lever base 巻止めレバー台

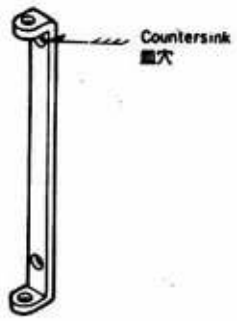
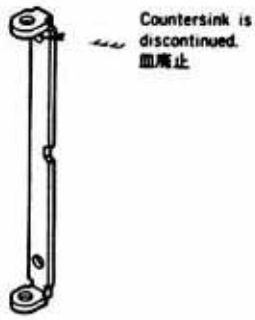
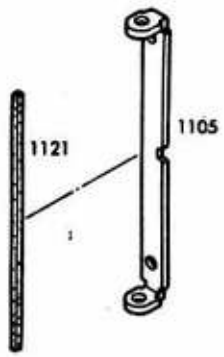
29. Mode switch / モードスイッチ

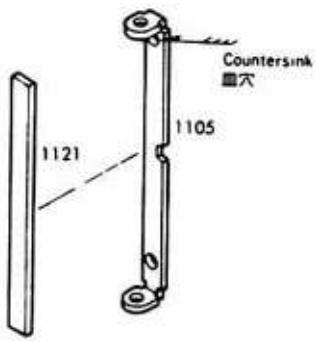
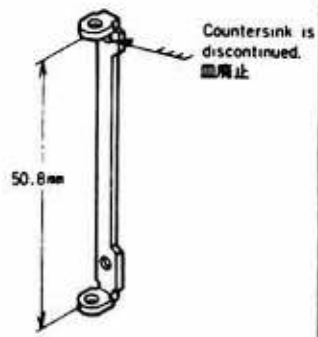
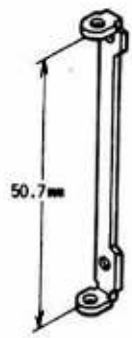
Type A	Type B
2006-0440-01	2006-0440-02
2006-1110-02 	2006-1110-05 
2006-3309-02	2006-3309-04
2006-3312-01 	2006-3312-02 
No used. 使用しない	2006-4025-01 

2006-0440 Self-timer change holder set セルフ切換接片ホルダーセット
2006-1110 Back cover lock lever 裏蓋ロックレバー
2006-3309 Rewinding axis receiver 巻戻し軸受
2006-3312 Light shield collar 巻戻し遮光カラー
2006-4025 Contact receiver セルフ切換接片ホルダー受け

30. Back cover hinge / 裏蓋ヒンジ

- One of Types C~F must be used for hard leather bodies.
- ハード貼皮のボデーにはType C~Fのいずれかを使用のこと。

Type A	Type B	Type C
2006-1105-02 or 2006-1105-03 (X)	2006-1105-04 (X)	2006-1105-04 (X) 2006-1121-81
		
9693-2045-01 (Screw) ※ 9695-2050-01 (For 1105 fitting) (1105取付用)	2006-9121-03 (Screw) 	Type B is used. Type Bを使用

Type D	Type E	Type F
2006-1105-81 (X) 2006-1121-01	2006-1105-05 (X)	2007-1105-03
		
Type A is used. Type Aを使用	Type B is used. Type Bを使用	Type B is used. Type Bを使用

2006-1105 } Hinge ヒンジ
2007-1105 }
2006-1121 Light shield packing ヒンジ部保護シート

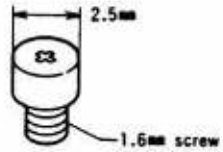
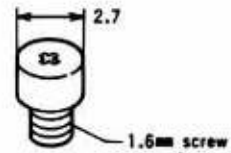
31. Strap hanger / 吊　環

- Type B is servicing part for users who use the camera very often.
- Type Bはカメラの使用頻度が高いユーザー用のサービス専用部品です。

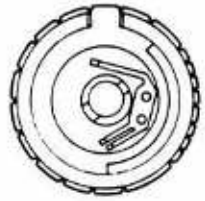
Type A	Type B
2006-1012-02	2006-0112-81

32. Film guide screw / フィルムガイドビス

- Type B is used for bodies of which screw hole is deflected.
- Type Bはねじ穴の位置がずれているボデーに使用します。

Type A	Type B
2006-9102-03 	2006-9102-81 

33. Dial axis / ダイヤル軸

Type A	Type B
2006-0272-01(X) 	2006-0272-02
2006-0274-01	2006-0274-02

2006-0272　Dial axis set　ダイヤル軸セット
2006-0274　ASA resistor set　回路基板Aセット
2006-0112　Strap hanger set　吊環セット
2006-1012　Strap hanger　吊 環
2006-9102　Film guide screw　フィルムガイドビス

34. Flexible circuit base plate / フレキシブル基板

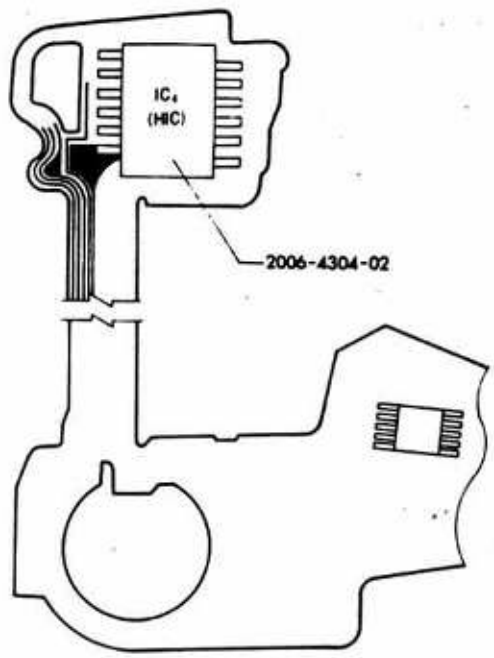
1 Flexible circuit base plate set / フレキシブル基板セット

- Flexible circuit base plate set can be classified as shown below according to the IC_4 (HIC) attached.
- For the measures against and the types of IC_4, refer to the next page.
- Regarding other elements on the flexible circuit base plate, the present type (parts list P. 17) can be used for Types A and B.

- フレキシブル基板セットは取付けられているIC_4 (HIC)によって下表のように大別されます。
- IC_4に関連する各種対策，及びIC_4の種類については次ページを参照して下さい。
- その他の基板上の素子については，現在のタイプ（パーツリストP. 17）をそのままType A，Bに使用できます。

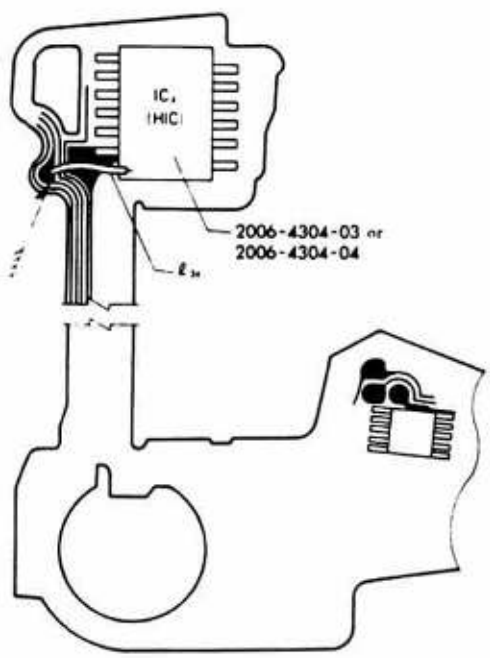
Type A

2006-0401-01 (×)



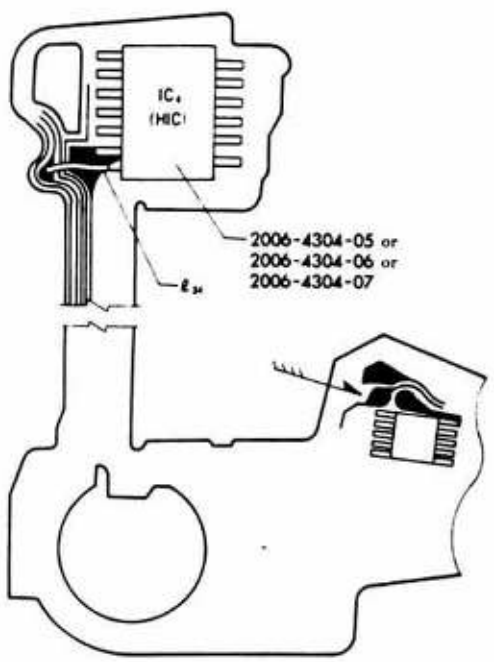
Type B

2006-0402-02 (×)



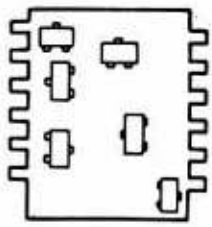
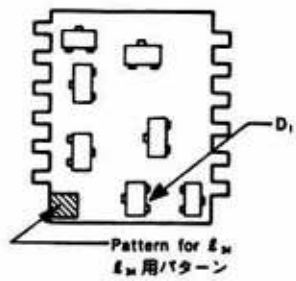
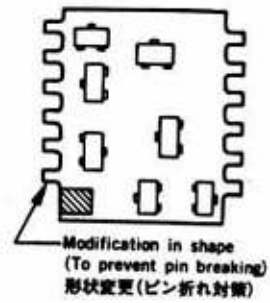
Type C

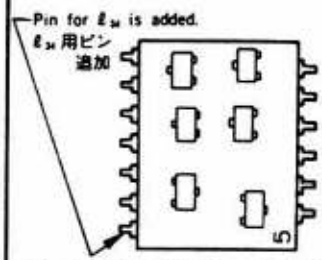
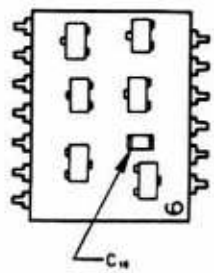
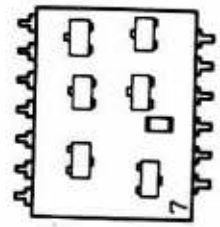
2006-0403-03



2 IC_4 (HIC)

- With R_{11} and C_{10} of next section 3 added to IC_4 of Type B, the performance is the same as Types E and F.
- Type B の IC_4 に次項3の R_{11}, C_{10} を追加すれば Type E, F と同性能になります。

Type A	Type B	Type C
2006-4304-02 (×)	2006-4304-03 (×)	2006-4304-04 (×)
		
	● D_1 is added. ● D_1 追加	

Type D	Type E	Type F
2006-4304-05 (×)	2006-4304-06 (×)	2006-4304-07
		
● D_1 is discontinued, and circuit is modified. ● Pin is modified to metallic pin. ● D_1 廃止, 回路変更 ● ピンを金属ピンに変更	● C_{10} is added. ● C_{10} 追加	● Pattern is modified. ● パターン変更

③Measures to be taken / 各種対策について

If the faulty operation of camera as mentioned below takes place, take one of the following measures.
① Fit the repair part. ② Replace IC_4 (4304). ③ Replace flexible circuit base plate set.

Faulty operation	Measures parts	Part No. taken measures	
		IC_4	Flexible circuit base plate set
• Depressing shutter button with mode switch OFF, shutter is not released when mode switch is turned ON.	—	ℓ_{34} (Fig. 1), 4304-03	0402-02
• It is unable to release self-timer operation. • Self-timer starts when mode switch is shifted to SELF after depressing shutter button with mode switch OFF.	C_9 (Fig. 2)	—	0402-02 (LED board is modified in pattern.)
When contact failure with S_7: • Winder operates when mode switch is moved. • Self-timer starts when mode switch is shifted from OFF to SELF.	R_{11} (Fig. 3)	4304-05 (Circuit is modified.)	0402-03
• Self-timer starts when a flash of high trigger voltage is flashed to test.	C_{10} (Fig. 2)	4305-06 (C_{10} is built in.)	0402-03

(Refer to next page for Figs. 1~3.)

Note : Avoid overlapping of different measures. (For example, fitting R_{11} to IC_4 of -05. All measures have been taken in -07 for IC_4 supplied for servicing at present.)
: To fit C_{10} results in completion of the measure to be taken for C_9.
: When replacing IC_4 of -02 with IC_4 of the flexible circuit base plate set after -03, it is necessary to use lead wire ℓ_{34}.

③各種対策について

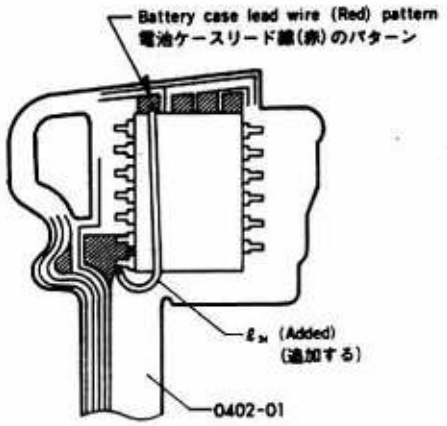
下表のようなカメラ誤動作の現象が現れる場合がありますがその時は，①対策部品を取付ける，②IC_4 (4304) の交換，③フレキシブル基板セットの交換，以上いずれかの処置を行って下さい。

誤動作の現象	対策部品 (取付位置)	対策後の部品番号	
		IC_4	フレキシブル基板セット
●モードSW. OFFでシャッター釦を押したままにし，その状態でモードSW. をONにしてもシャッターレリーズしない。	—	ℓ_{34} (Fig. 1) 4304-03	0402-02
●セルフタイマー作動を解除できない。 ●モードSW. OFFでシャッター釦を押してから，モードSW. をSELFに切換えるだけでセルフがスタートする。	C_9 (Fig. 2)	—	0402-02 (LED基板のパターンを変更)
S_7が接触不良の時 ●モードSW. を動かすとワインダーが作動する。 ●モードSW. をOFF→SELFと切換えるだけでセルフがスタートする。	R_{11} (Fig. 3)	4304-05 (回路変更)	0402-03
●トリガー電圧の高いフラッシュをテスト発光させた時，セルフがスタートする。	C_{10} (Fig. 2)	4305-06 (C_{10}内蔵)	0402-03

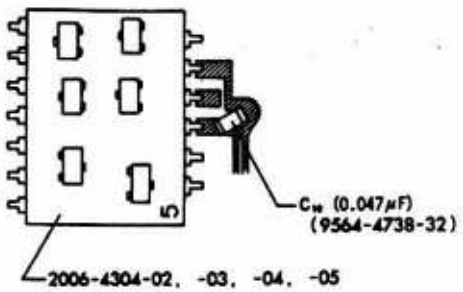
(Fig. 1～3は次ページ参照)

注意：各種対策が重複しないこと。(例えば-05のIC_4にR_{11}の取付け等。現在のサービス供給用のIC_4は-07で，全ての対策がなされています。)
：C_{10}を取付けることにより，C_9での対策効果も含まれます。
：-02のIC_4を-03以降のIC_4に交換する場合は，リード線ℓ_{34}が必要です。

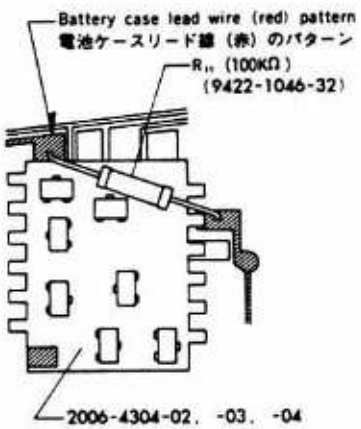
■Fig. 1
Replacing IC_4 of -02 with IC_4 that is on and after -03.
-02のIC_4を-03以降のIC_4に交換する場合



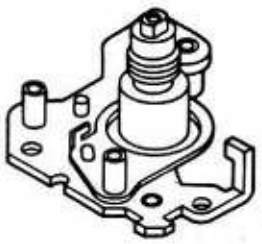
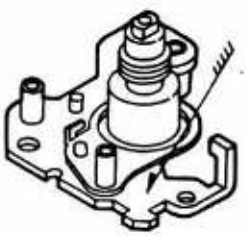
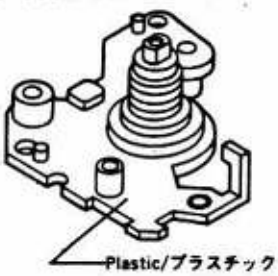
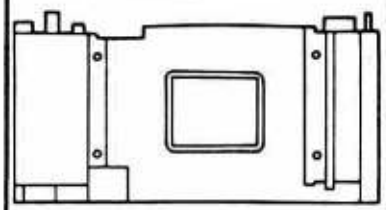
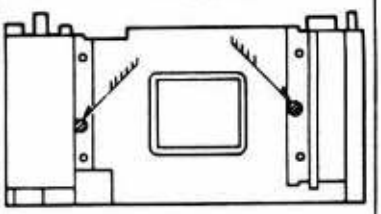
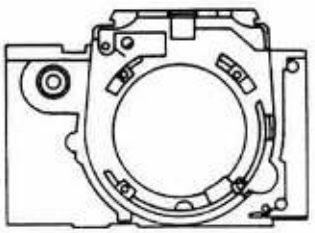
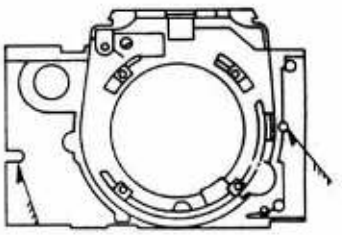
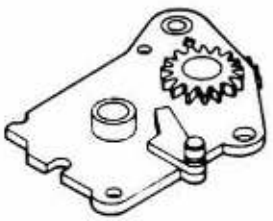
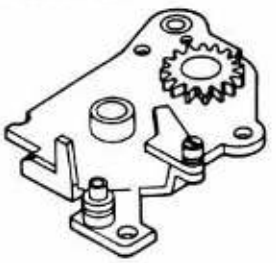
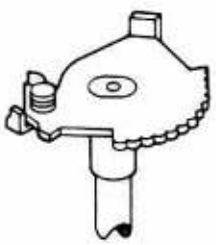
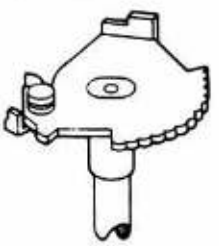
■Fig. 2
Fitting of C_{10}
C_{10}の取付け



■Fig. 3
Fitting of R_{11}
R_{11}の取付け

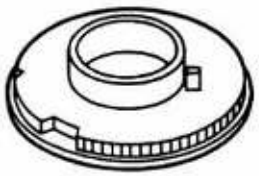
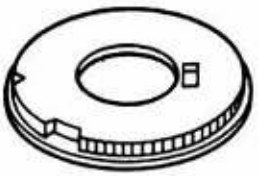
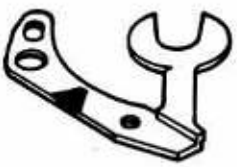
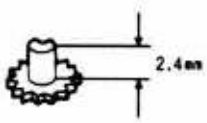
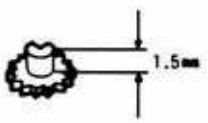
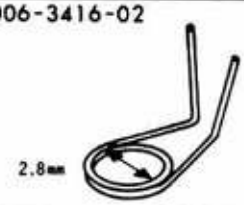


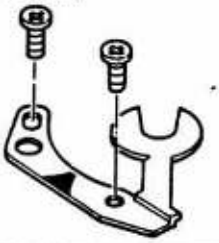
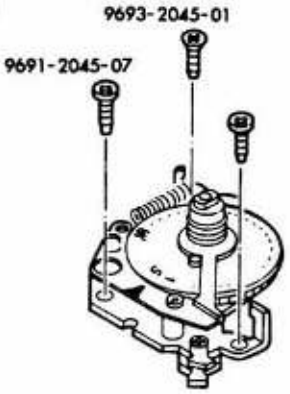
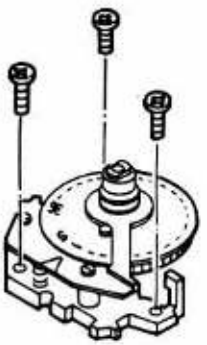
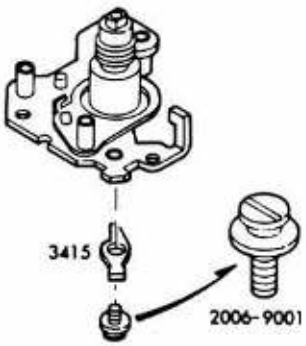
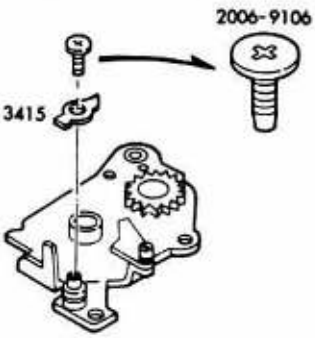
26. Winding base plate-B / 巻取台板B

Type A	Type B	Type C	Reference page
2006-0384-01 	2006-0384-81 (×) 	2006-0384-02 	
Body (No supply / 非供給) 	Body (No supply / 非供給) 	Body (No supply / 非供給) (Type B)	
2006-0151-02  ● Type B can be used. ● Type B使用可能	2006-0151-05 	2006-0151-05 (Type B)	P. 41
2006-0338-01 	2006-0338-02 	2006-0338-02 (Type B)	
2006-0340-01 	2006-0340-02 or 2019-0340-12 	2006-0340-02 or 2019-0340-12 (Type B)	P. 46

Continued to next page / 次ページに続く

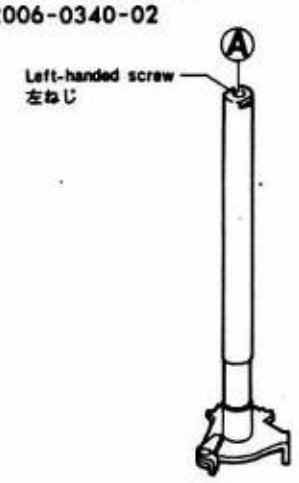
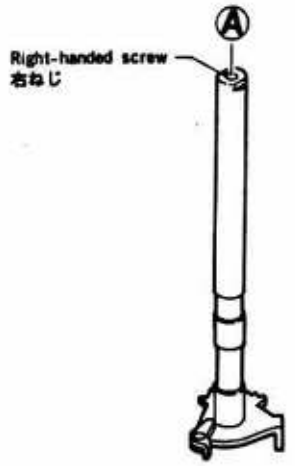
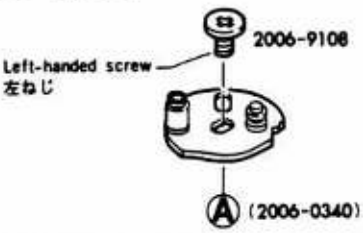
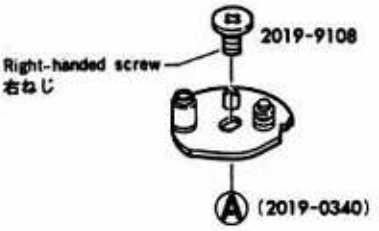
2006-0151 Front base plate set 前枠セット
2006-0338 Winding base plate A set 巻取台板Aセット
2006-0340 / 2019-0340 Winding operation plate set 巻取操作板セット
2006-0384 Winding base plate B set 巻取台板Bセット

Type A	Type B	Type C
2006-0381-01 	2006-0381-01 (Type A)	2006-0381-02 
2006-0382-01	2006-0382-01 (Type A)	Not used. 使用しない
2006-0383-01	2006-0383-01 (Type A)	2006-3412-03
2006-3407-06	2006-3407-06 (Type A)	2006-3407-08 
2006-0386-01	2006-0386-01 (Type A)	2006-3408-05
2006-3410-02 	2006-3410-02 (Type A)	2006-3410-03 
2006-3414-03	2006-3414-03 (Type A)	2006-3414-07
2006-3416-02 	2019-3416-05	2019-3416-05 (Type B)

Type A	Type B	Type C
2006-3409-02 	2006-3409-02 (Type A)	Not used. 使用しない
9612-1416-07 (Phillips type screw) 	9612-1416-07 (Phillips type screw) (Type A)	9762-1745-02 (Tap tite screw) 
9693-2045-01 9691-2045-07 (× 2) (Phillips type tapping screw) 	9693-2045-01 9691-2045-07 (× 2) (Phillips type tapping screw) (Type A)	9761-2055-07 (× 3) (Tap tite screw) 
2006-9001-01 	2006-9106-01 (Screw) 	2006-9106-01 (Screw) (Type B)

2006-0381	Counter ratchet set	カウンターラチエットセット
2006-0382	Return lever set	ゼロリターンレバーセット
2006-0383	Counter operation gear-A set	カウンター連結ギヤーセット
2006-0386	Counter operation lever set	カウンター駆動操作レバーセット
2006-3407	Counter index	カウンター指標
2006-3408	Counter operation lever	カウンター駆動操作レバー
2006-3409	Counter operation lever spring	カウンター駆動操作レバーSP
2006-3410	Counter operation gear-B	カウンター駆動ギヤー
2006-3412	Counter operation gear-A	カウンター連結ギヤー
2006-3414	Return lever spring	ゼロリターンレバーSP
2006-3416	Winding operation lever-A spring	トンボ返りレバーSP
2006-9001	Winding operation lever-A screw	トンボ返りレバー止めビス

27. Winding operation plate set / 巻取操作板セット

Type A	Type B	Reference page
2006-0340-01 or 2006-0340-02 	2019-0340-12 	P. 43
2006-9108-03 	2019-9108-01 	

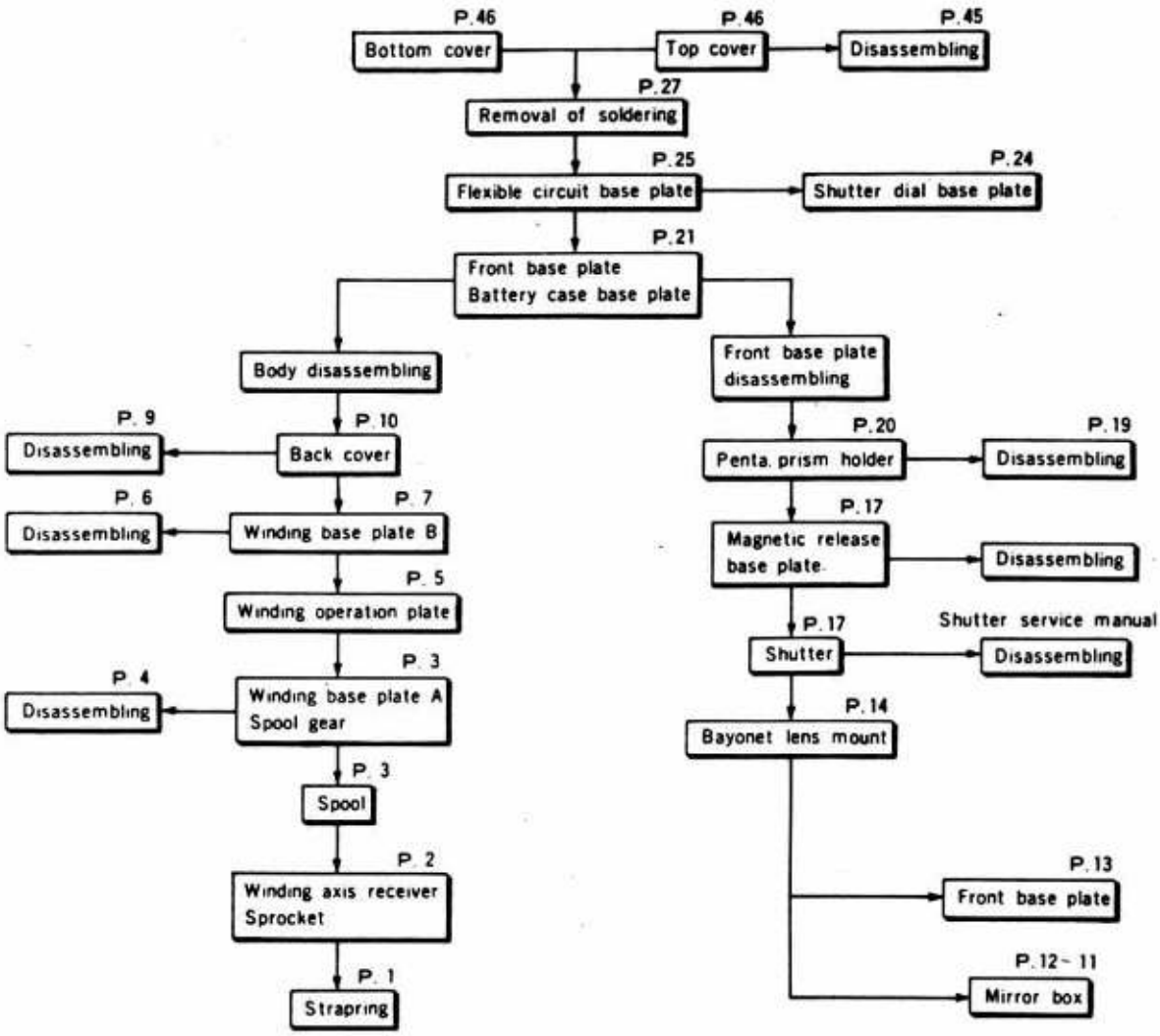
Disassembly, Assembly and Adjustment

■ For disassembly, refer to the related pages in the reverse order as the contents of this manual are arranged in the order of procedures for assembling and adjusting.

– Abbreviations –

✣ : Assembly note and reference.
[G] : Grease to be used and where to apply it.
[O] : Oil to be used and where to apply it.
[B] : Bond to be used and where to bind.
[T] : Special tool No. and where to use it.

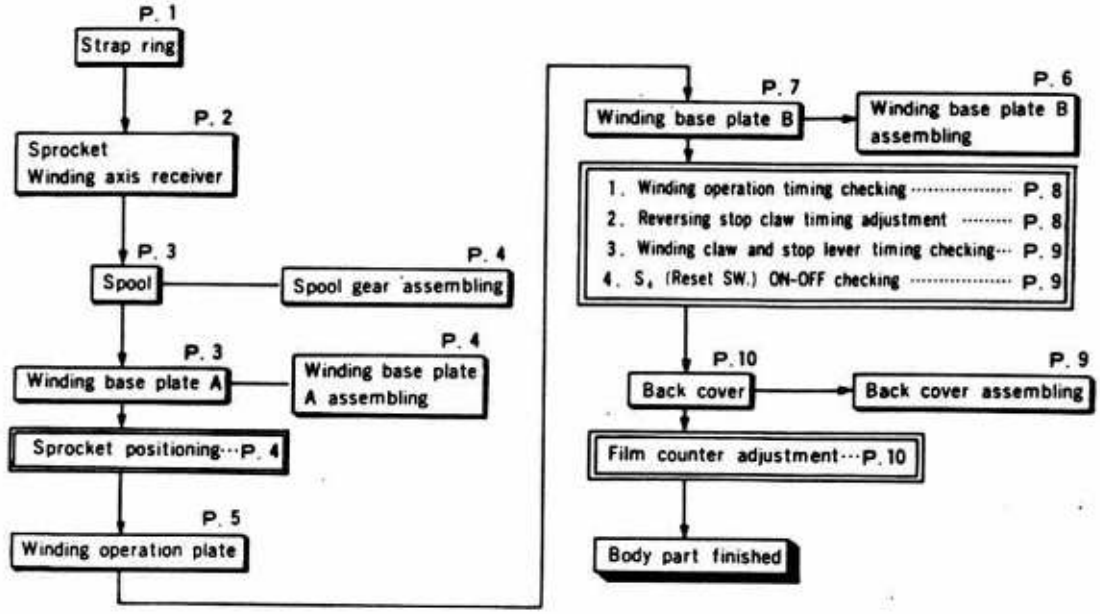
■ Disassembling Procedures Chart



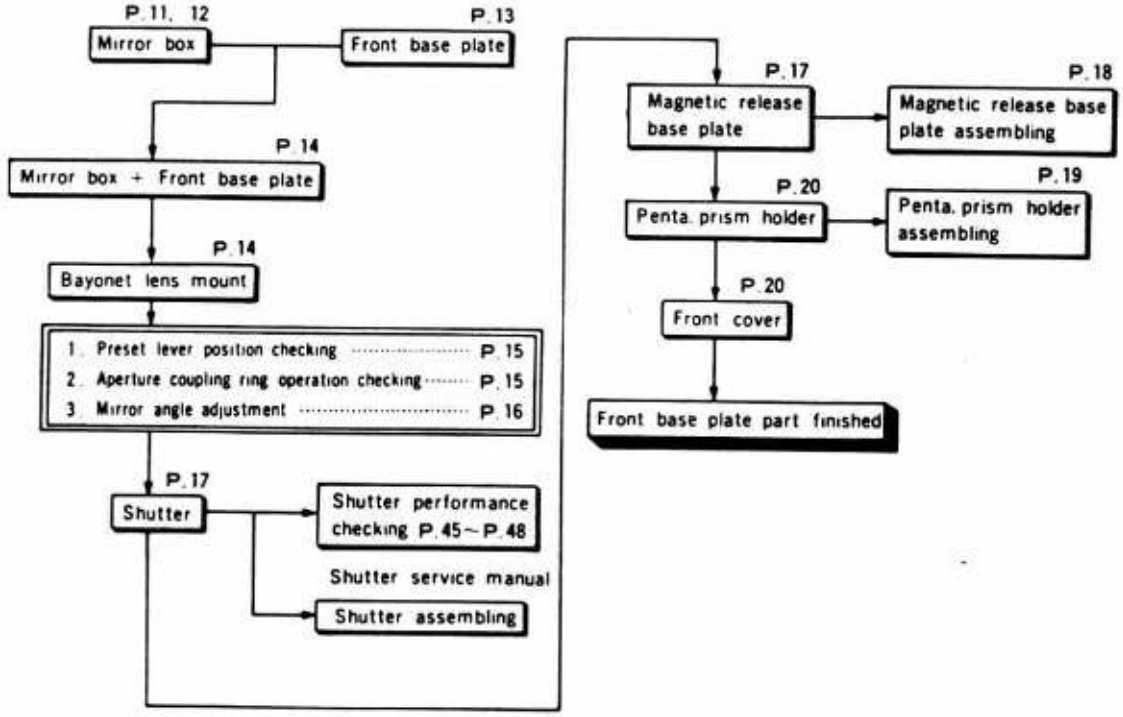
■ Assembling/Adjustment Procedures Chart

- Be carefull with assembling/adjustment of body as following points. Because this camera's body is used resin.
  1. Creaner can use only FLONSOLVE or Alchol. Do not use thinner, ketone and ether.
  2. Use correct screws only and install to vartical against part. DO NOT OVERTIGHT.
  3. Use the countermeasure screw instead of the screw when screw hole is loosen. (See Parts list).

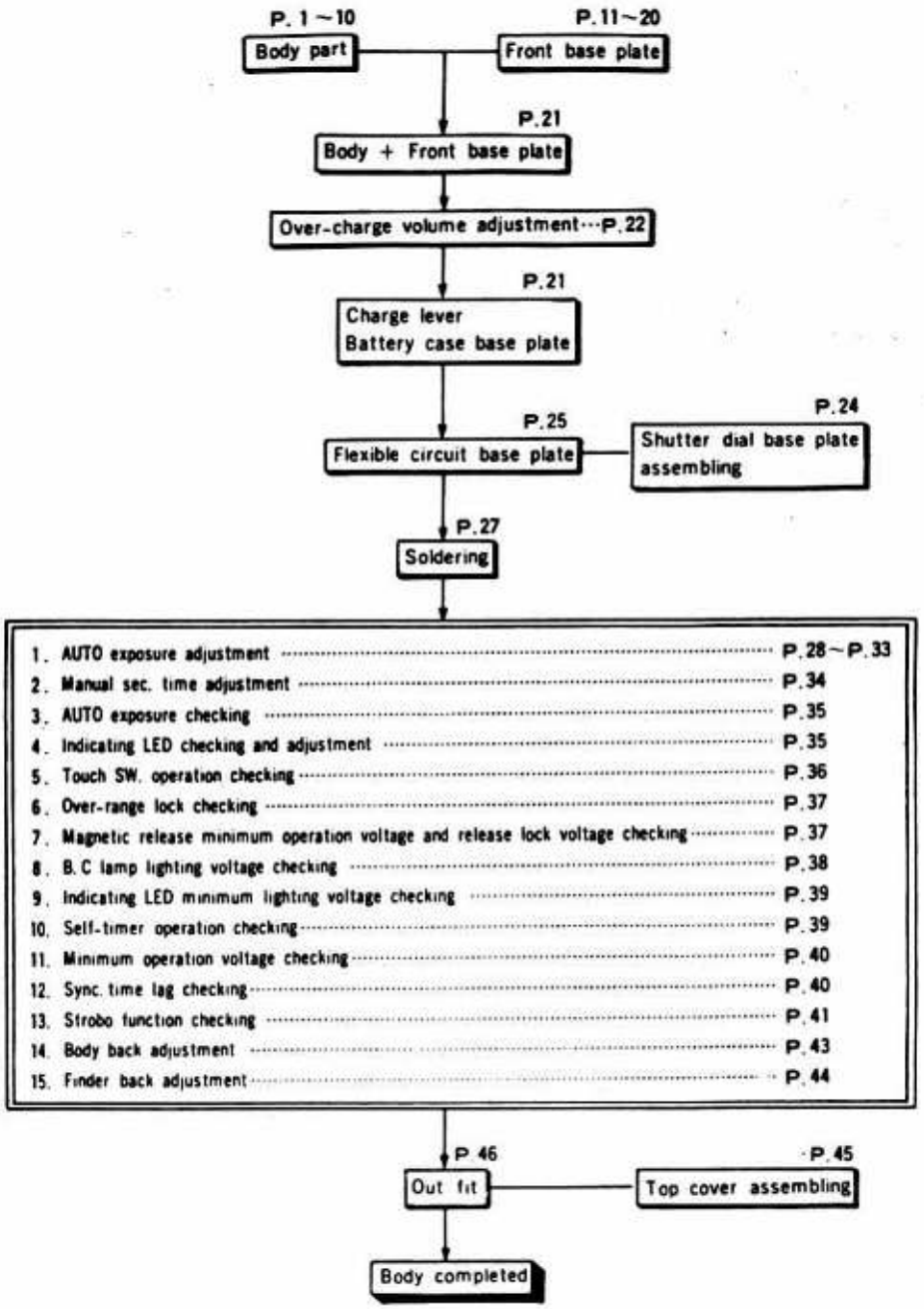
1 Body part (P. 1~P. 10)



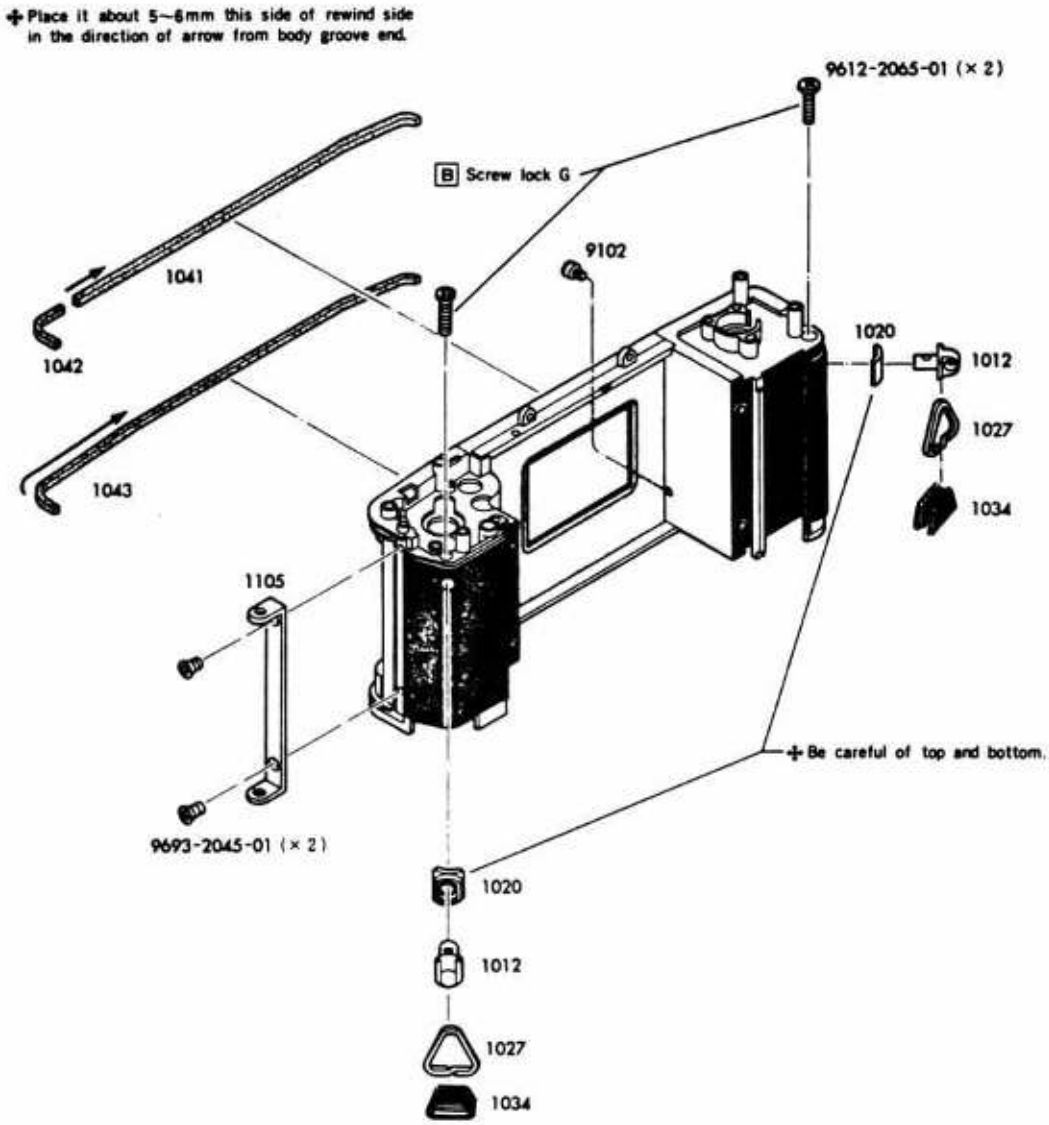
2 Front base plate block (P. 11~P. 20)



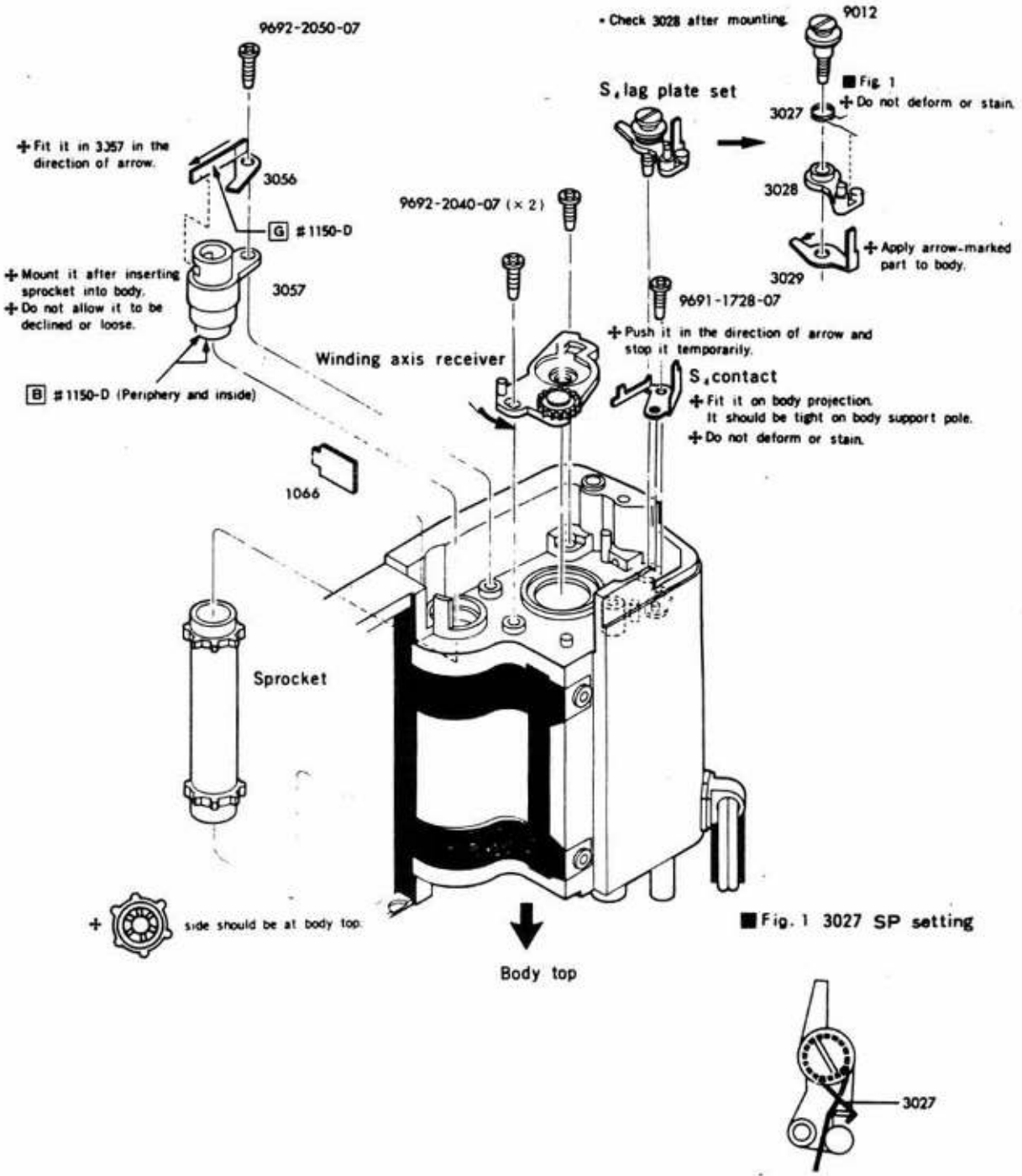
3 To completion of body (P.21~P.51)


P. 1 ~10
Body part
P.11~20
Front base plate
P.21
Body + Front base plate
Over-charge volume adjustment···P.22
P.21
Charge lever
Battery case base plate
P.25
Flexible circuit base plate
P.24
Shutter dial base plate assembling
P.27
Soldering
1. AUTO exposure adjustment ····· P.28~P.33
2. Manual sec. time adjustment ····· P.34
3. AUTO exposure checking ····· P.35
4. Indicating LED checking and adjustment ····· P.35
5. Touch SW. operation checking ····· P.36
6. Over-range lock checking ····· P.37
7. Magnetic release minimum operation voltage and release lock voltage checking ····· P.37
8. B.C lamp lighting voltage checking ····· P.38
9. Indicating LED minimum lighting voltage checking ····· P.39
10. Self-timer operation checking ····· P.39
11. Minimum operation voltage checking ····· P.40
12. Sync. time lag checking ····· P.40
13. Strobo function checking ····· P.41
14. Body back adjustment ····· P.43
15. Finder back adjustment ····· P.44
P.46
Out fit
P.45
Top cover assembling
Body completed

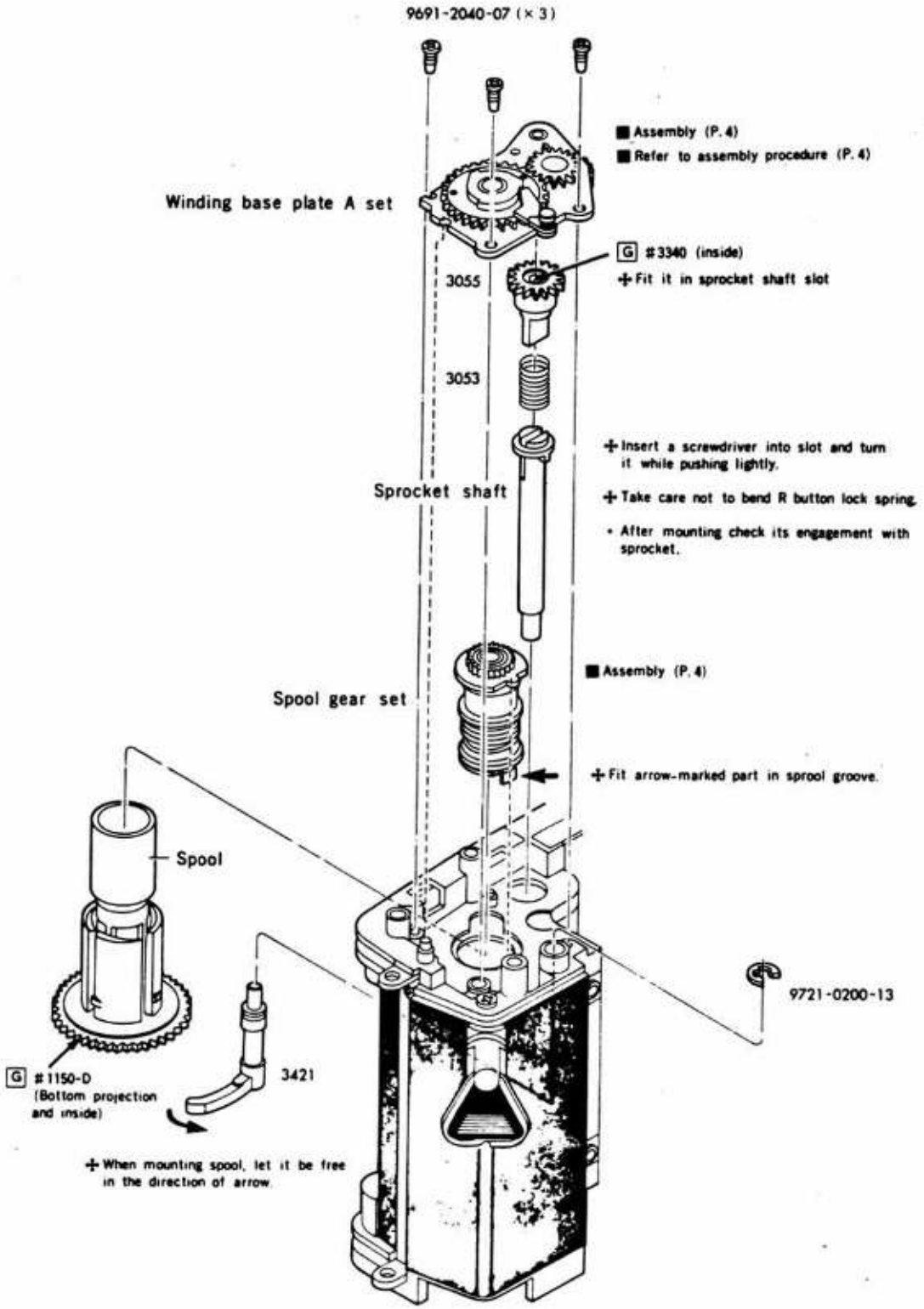
1 Strap ring · Light shielding packing



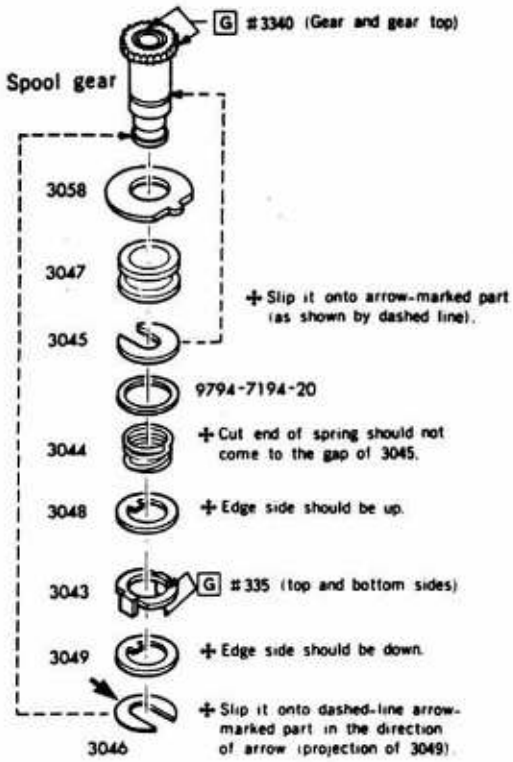
2 Sprocket·Winding axis receiver·S_4 (Reset SW.)


9692-2050-07
• Check 3028 after mounting.
9012
■ Fig. 1
✢ Do not deform or stain.
S_4 lag plate set
3027
✢ Fit it in 3357 in the direction of arrow.
3056
3028
9692-2040-07 (× 2)
G # 1150-D
✢ Apply arrow-marked part to body.
3029
✢ Mount it after inserting sprocket into body.
✢ Do not allow it to be declined or loose.
3057
9691-1728-07
✢ Push it in the direction of arrow and stop it temporarily.
Winding axis receiver
S_4 contact
✢ Fit it on body projection. It should be tight on body support pole.
✢ Do not deform or stain.
B # 1150-D (Periphery and inside)
1066
Sprocket
✢ side should be at body top.
Body top
■ Fig. 1 3027 SP setting
3027

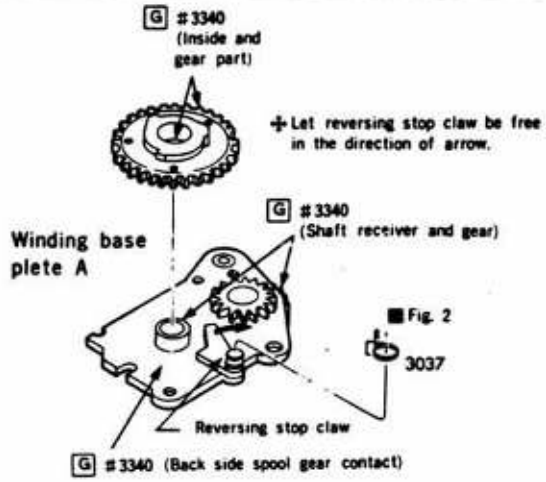
3 Spool · Winding base plate A set


9691-2040-07 (× 3)
■ Assembly (P. 4)
■ Refer to assembly procedure (P. 4)
Winding base plate A set
G #3340 (inside)
✢ Fit it in sprocket shaft slot
3055
3053
✢ Insert a screwdriver into slot and turn it while pushing lightly.
✢ Take care not to bend R button lock spring.
• After mounting check its engagement with sprocket.
Sprocket shaft
■ Assembly (P. 4)
Spool gear set
✢ Fit arrow-marked part in sprool groove.
Spool
9721-0200-13
G #1150-D
(Bottom projection and inside)
3421
✢ When mounting spool, let it be free in the direction of arrow.

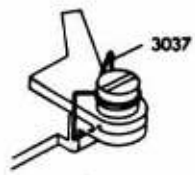
■ Spool G set assembly


G #3340 (Gear and gear top)
Spool gear
3058
3047
3045
9794-7194-20
3044
3048
3043
3049
3046
+ Slip it onto arrow-marked part (as shown by dashed line).
+ Cut end of spring should not come to the gap of 3045.
+ Edge side should be up.
G #335 (top and bottom sides)
+ Edge side should be down.
+ Slip it onto dashed-line arrow-marked part in the direction of arrow (projection of 3049)

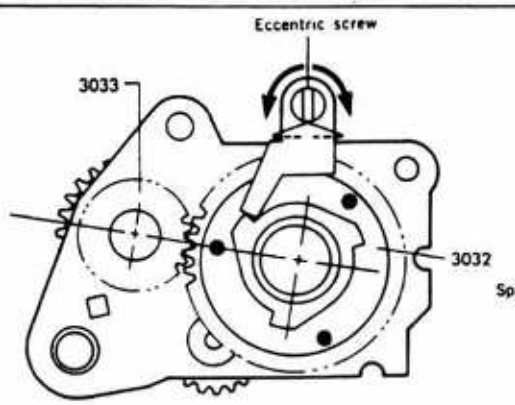
■ Winding base plate A set assembly

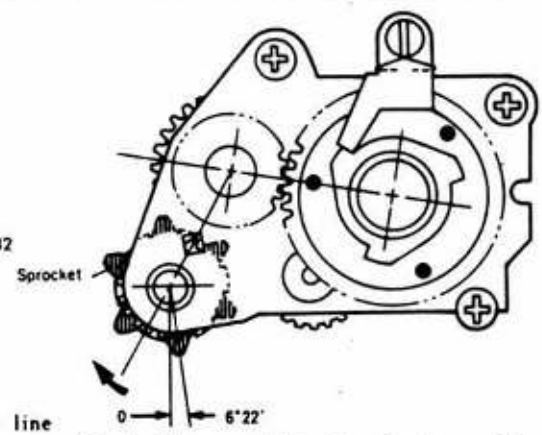

G #3340 (Inside and gear part)
+ Let reversing stop claw be free in the direction of arrow.
G #3340 (Shaft receiver and gear)
Winding base plete A
Fig. 2
3037
Reversing stop claw
G #3340 (Back side spool gear contact)

■ Fig. 2 3037 SP setting



■ Winding base plate A set assembly (Sprocket positioning)





1. Matching the punch mark on 3032 with the line connecting 3032 center to 3033 center of winding base plate A set, make the adjustment by eccentric screw so that reversing stop claw touches the notch of 3032.

2. Holding sprocket claw in the position as illustrated, fit sprocket gear projection in sprocket shaft groove, and thus mount the winding base plate A set as in (1).

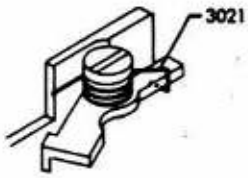
• Checking

1. When spool is turned clockwise, each gear and sprocket should rotate smoothly.
2. When spool is rotated once and reversing stop claw is fitted in the notch of 3032, sprocket and each gear should be in the positions as illustrated. When sprocket has been returned in the direction of arrow, it should be at "0" position.
3. Pushing R button should cause sprocket to idle, and R button should become released when spool is turned.

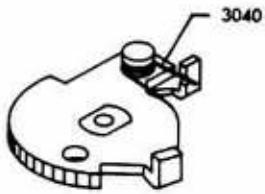
121

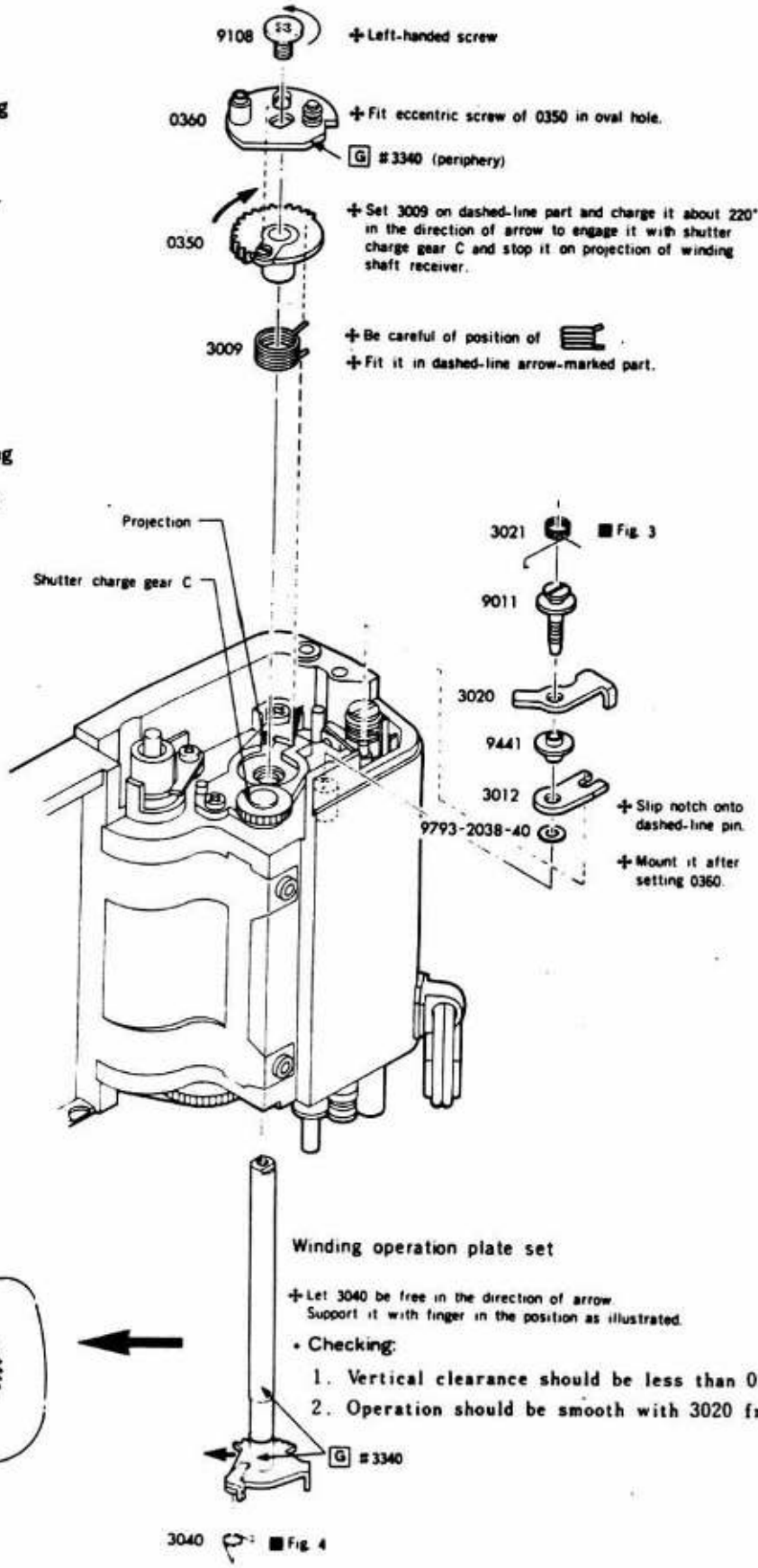
4 Winding operation plate set

■Fig. 3 3021 SP setting

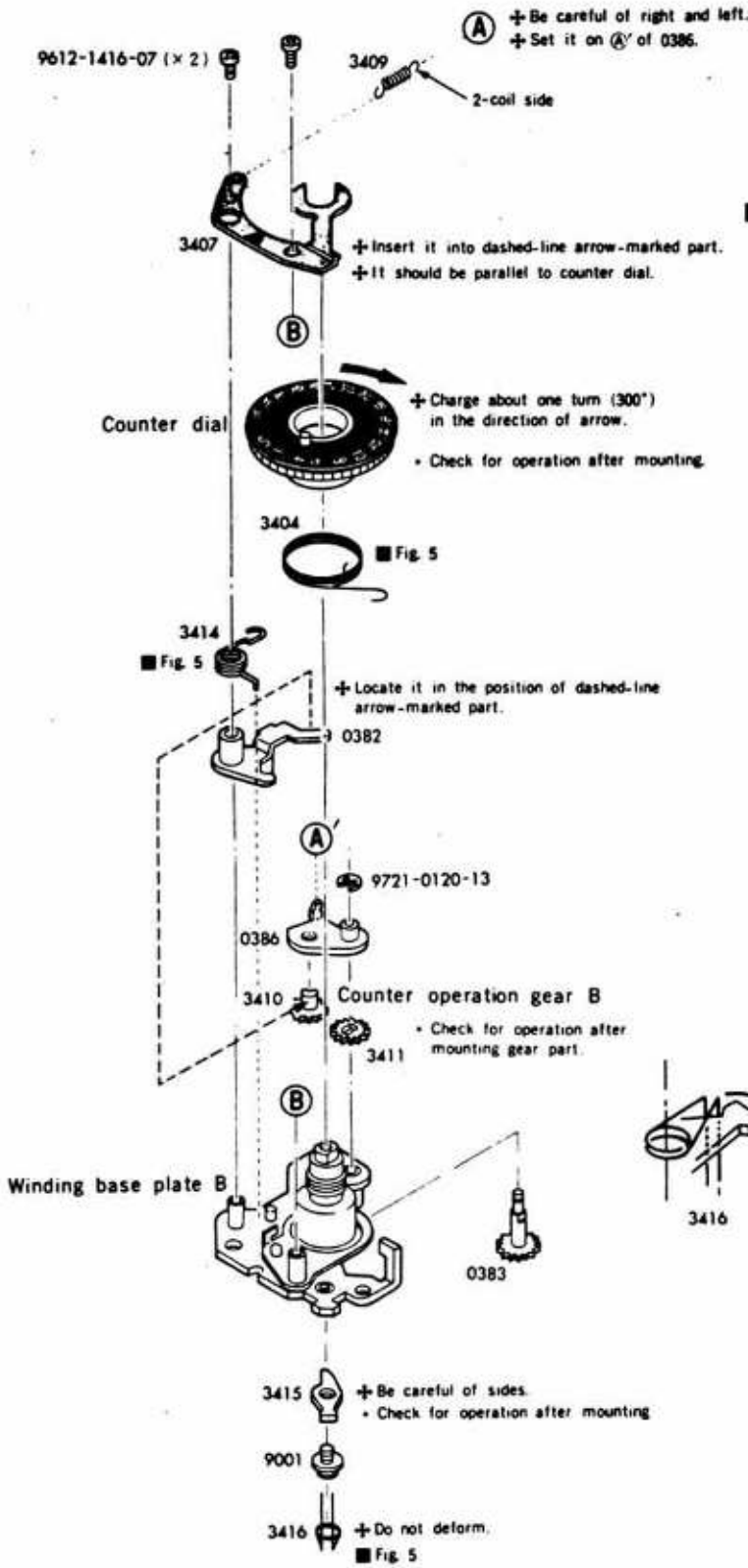


■Fig. 4 3040 SP setting

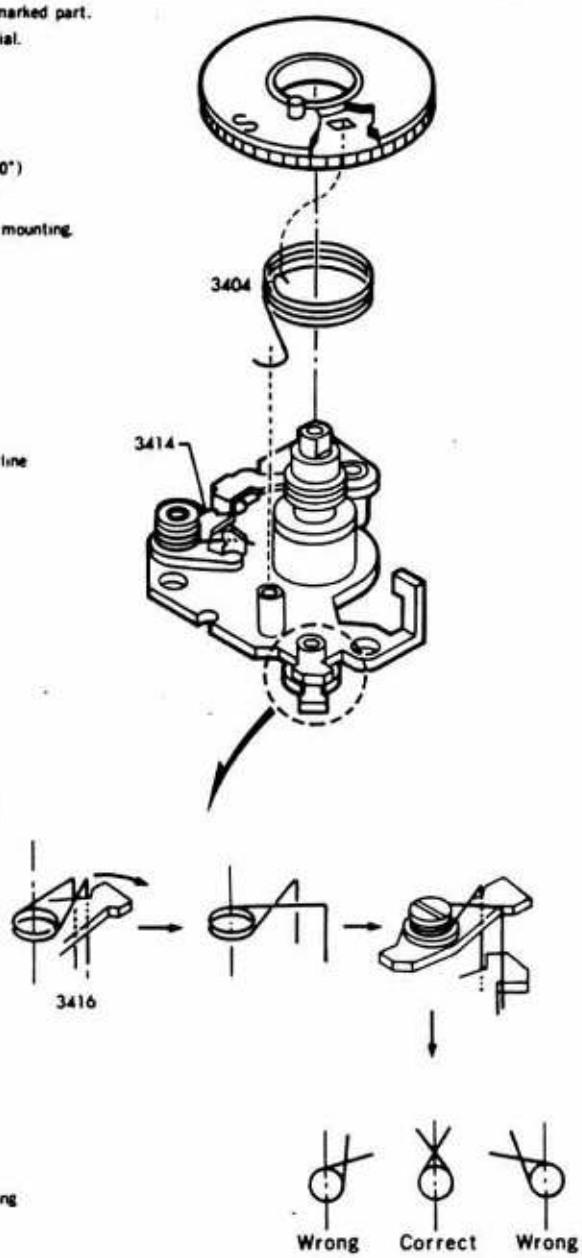



9108
Left-handed screw
0360
Fit eccentric screw of 0350 in oval hole.
G #3340 (periphery)
0350
Set 3009 on dashed-line part and charge it about 220° in the direction of arrow to engage it with shutter charge gear C and stop it on projection of winding shaft receiver.
3009
Be careful of position of
Fit it in dashed-line arrow-marked part.
Projection
Shutter charge gear C
3021
■Fig. 3
9011
3020
9441
3012
9793-2038-40
Slip notch onto dashed-line pin.
Mount it after setting 0360.
Winding operation plate set
Let 3040 be free in the direction of arrow. Support it with finger in the position as illustrated.
• Checking:
1. Vertical clearance should be less than 0.2mm.
2. Operation should be smooth with 3020 freed.
G #3340
3040
■Fig. 4

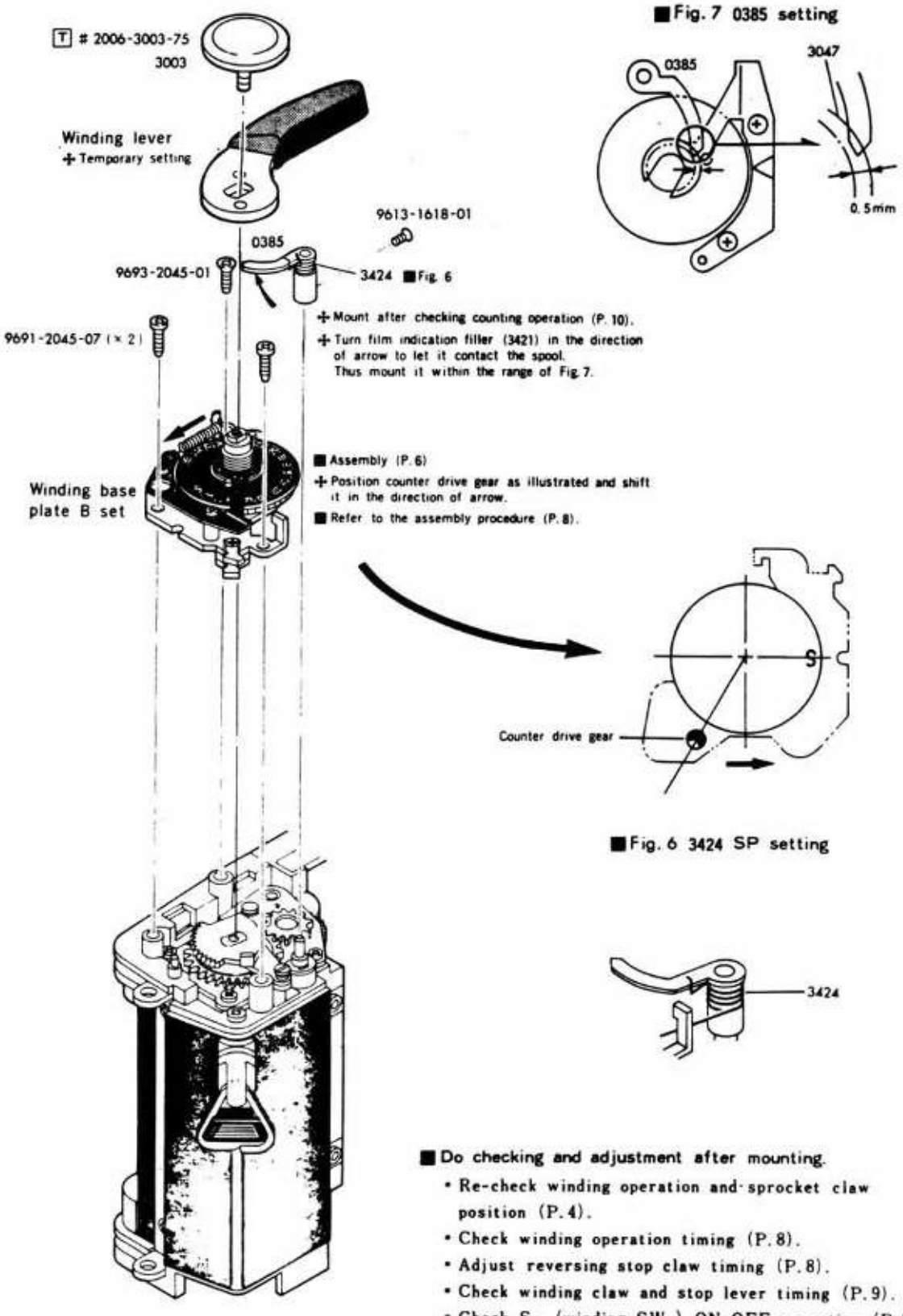
■ Winding base plate B assembly



■Fig. 5 3404, 3414, 3416 SP setting



5 Winding base plate B set

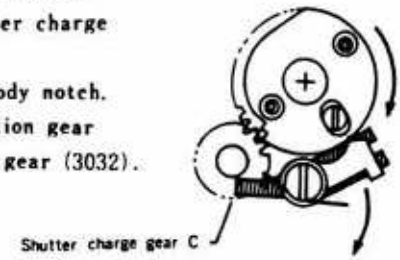

T # 2006-3003-75
3003
Winding lever
✣ Temporary setting
9613-1618-01
0385
9693-2045-01
3424 ■Fig. 6
9691-2045-07 (× 2)
✣ Mount after checking counting operation (P. 10).
✣ Turn film indication filler (3421) in the direction of arrow to let it contact the spool. Thus mount it within the range of Fig. 7.
Winding base plate B set
■ Assembly (P. 6)
✣ Position counter drive gear as illustrated and shift it in the direction of arrow.
■ Refer to the assembly procedure (P. 8).
Counter drive gear
■Fig. 7 0385 setting
0385
3047
0.5mm
■Fig. 6 3424 SP setting
3424

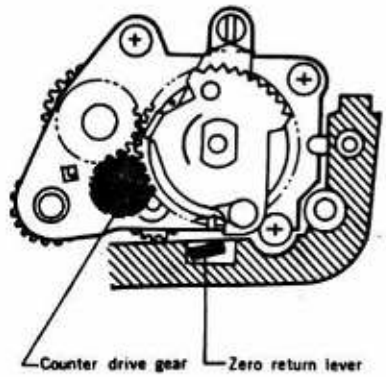
■ Do checking and adjustment after mounting.

- Re-check winding operation and sprocket claw position (P. 4).
- Check winding operation timing (P. 8).
- Adjust reversing stop claw timing (P. 8).
- Check winding claw and stop lever timing (P. 9).
- Check S_4 (winding SW.) ON-OFF operation (P. 9).

■ Winding base plate B set assembly procedure

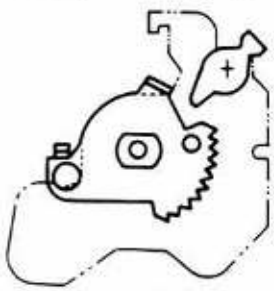
1. Let reset lever (3020) be free and charge winding operation plate set about 90°. Then hold shutter charge gear C with finger.
2. Fit zero return lever in body notch. Then engage counter operation gear A set (0383) with winding gear (3032).

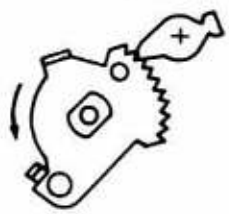


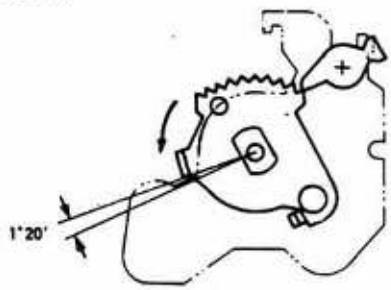


■ Winding operation timing checking

1. Slowly do winding. Then, winding operation lever A (3415) should stop winding operation plate set. If it is defective, check winding operation lever and spring shape. (P. 6)
2. Also, winding operation lever should become disengaged within 1°20′ ± 1° (about 0.05 ~ 0.3mm) before completion of winding.
   If timing is wrong, adjust the position of winding base plate B set.


(Before winding)

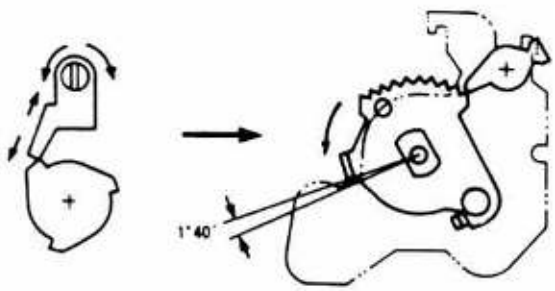

(During winding)



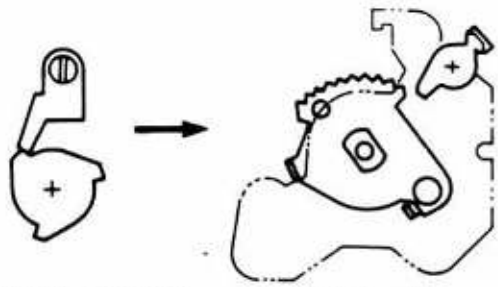
(Winding operation timing)

■ Reversing stop claw timing adjustment

Adjustment: Make the adjustment by eccentric screw so that reversing stop claw starts acting just before (20′ → about 0.05mm) disengagement of winding operation lever when winding is slowly done and the claw completely stops reversing motion when winding has been completed.



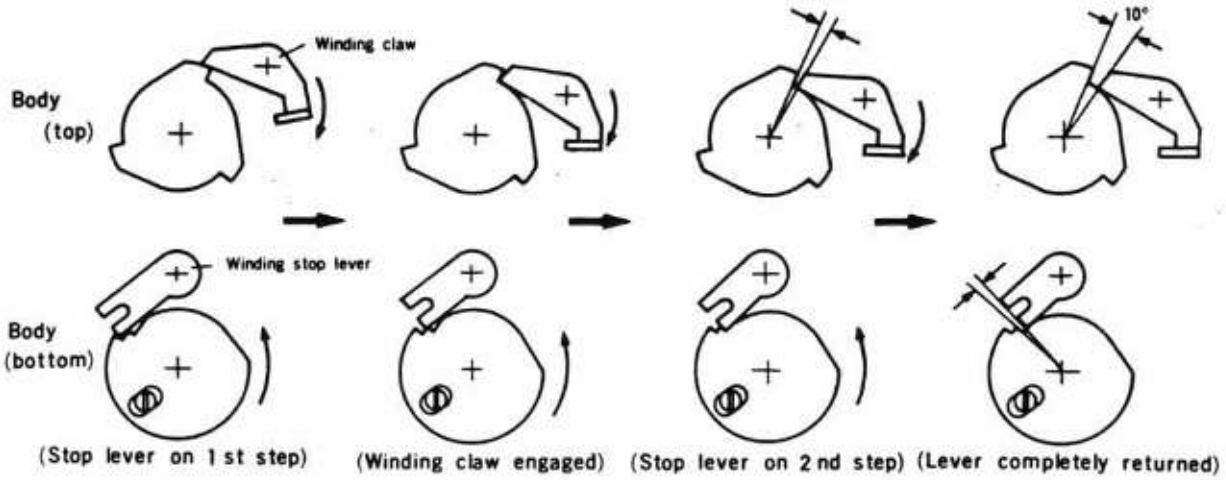
(Reversing stop claw starts acting.)
(Winding operation lever position.)


(Reversing stop claw is completely acting.)
(Winding is completed.)

Checking: Timing should be as follows:
Reversing stop claw starts acting ➡ Winding operation lever is disengaged ➡ Reversing stop claw is completely acting (winding completed)

■ Winding claw and stop lever timing checking

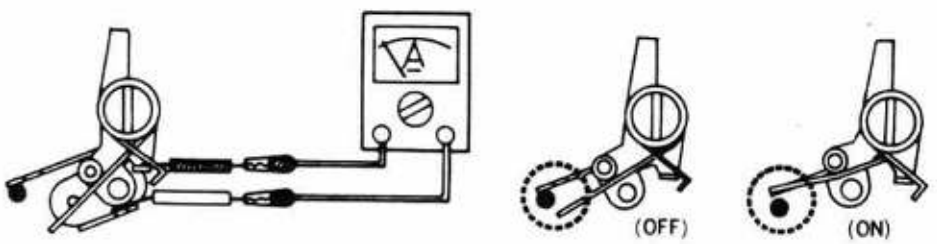
Slowly return the winding lever after completion of winding. Then, the timing should be as illustrated below.



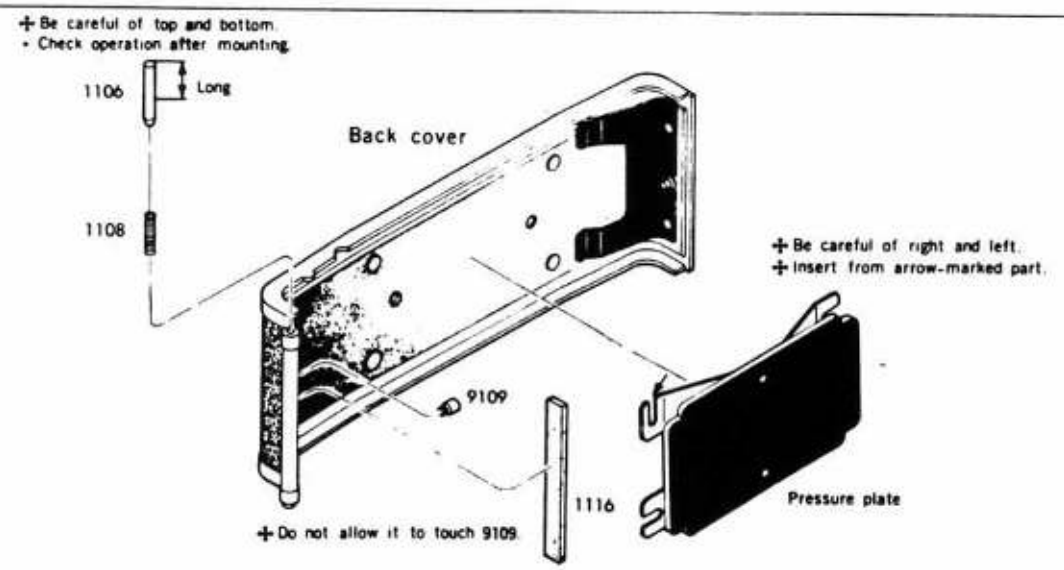
Winding operation lever should return while stop lever moves from 1 st to 2 nd step.

■ S_4 (Reset SW.) ON-OFF checking

1. Connect circuit tester to S_4 contact (3026) and S_4 lag plate (3029).
2. When winding lever is slowly returned after completion of winding, it should be OFF with stop lever rested on the 1 st step and ON with the lever rested on the 2 nd step. If the timing is wrong, check and adjust contact position and bending.



■ Back cover assembly



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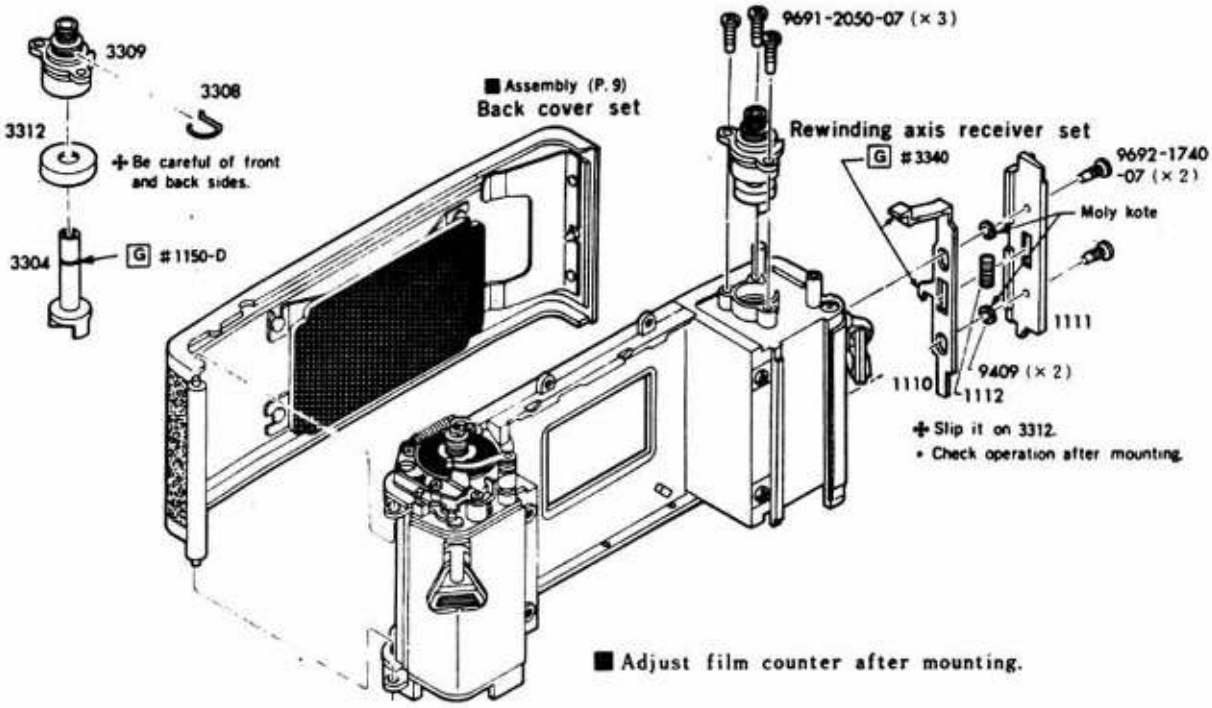
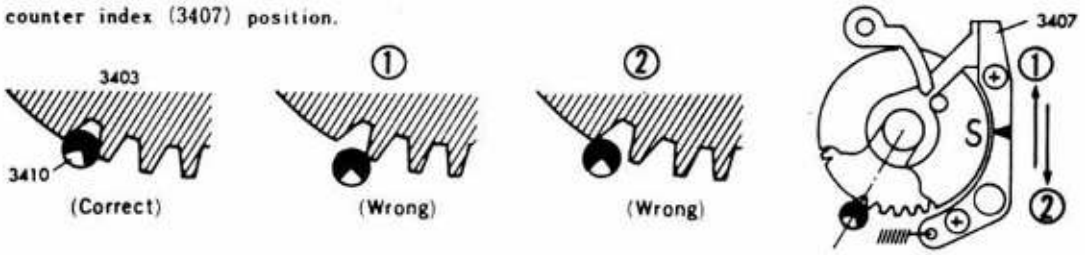
6 Back cover·Rewinding axis receiver set

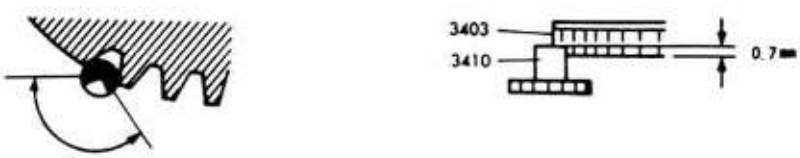


■ Film counter adjustment

1. When back cover is closed, counter drive gear (3410) shaft should be in the first groove of counter ratchet (3403). If deflected, adjust counter index (3407) position.
2. At center of "S" of counter dial should be "▲" of counter index (3407). If deflected, adjust counter index (3407) position.



3. V-groove of counter drive gear (3410) should be positioned as illustrated below. If deflected, adjust it according to the procedure on Page. 7.
4. Counter drive gear (3410) should be engaged with counter ratchet (3403) at the height as illustrated below. If deflected, check and adjust counter index (3407).

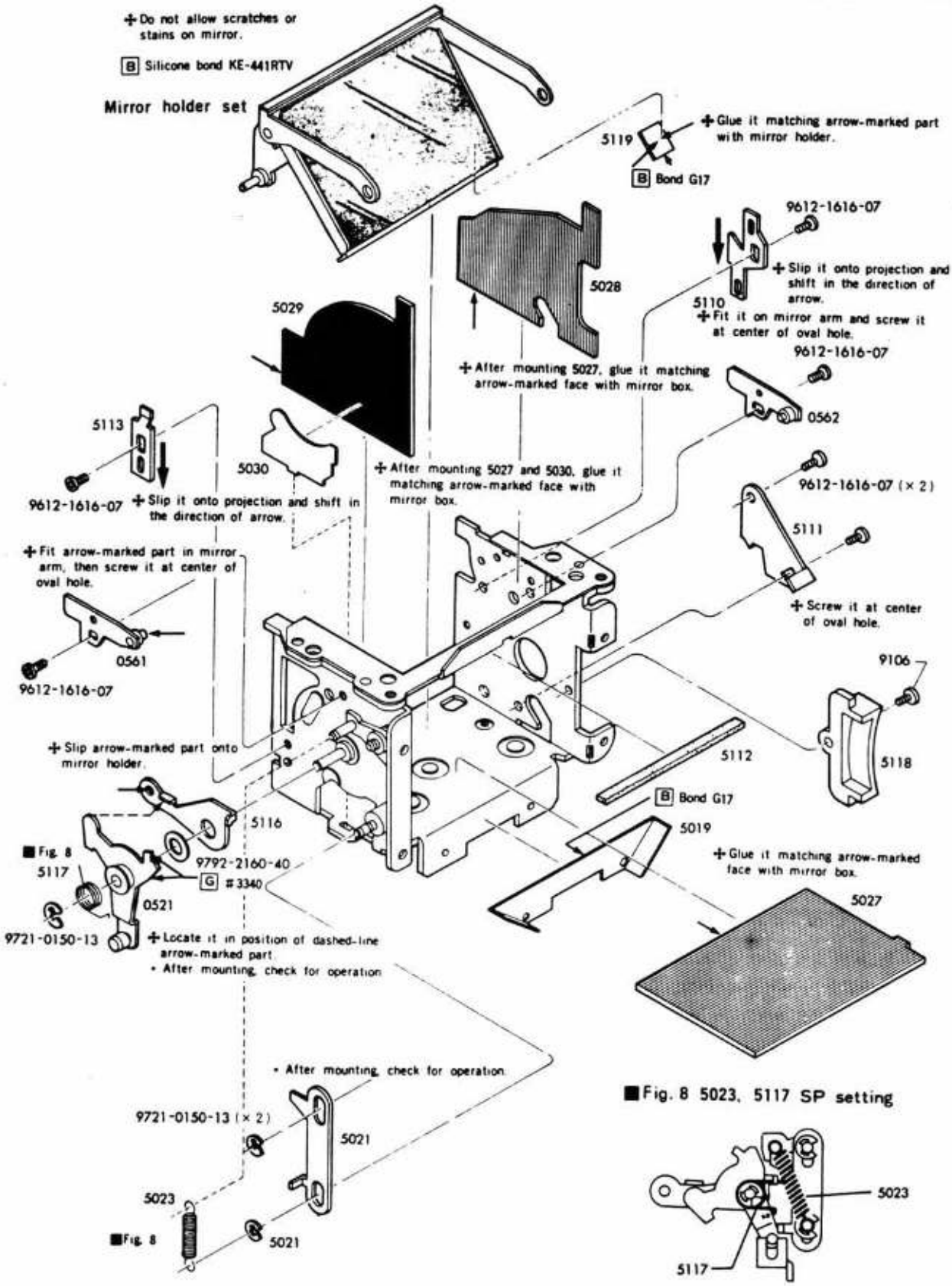


3410 and groove position. 3410 and 3403 engagement

• Checking: Do winding twice from position "S". Then, counter should indicate "1".
When further winding is done, there should be no skip, double feed, standstill, etc.
Also, returning operation should be smooth.

127 85

7 Mirror box I

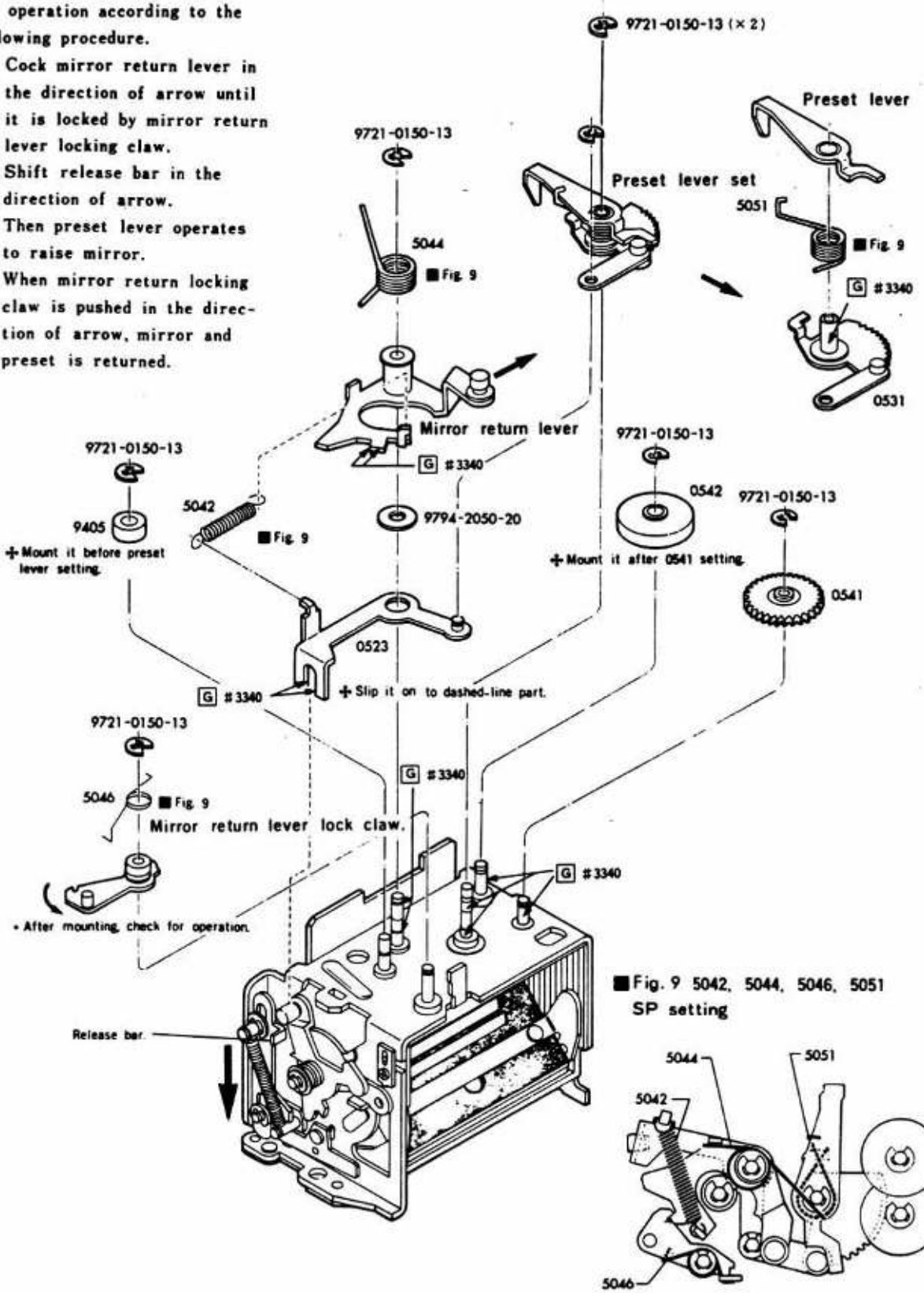


■Fig. 8 5023, 5117 SP setting

■After adjusting mirror edge, apply B screw lock G to set-screws 0561, 0562, 5110, 5111, 5113.

8 Mirror box II

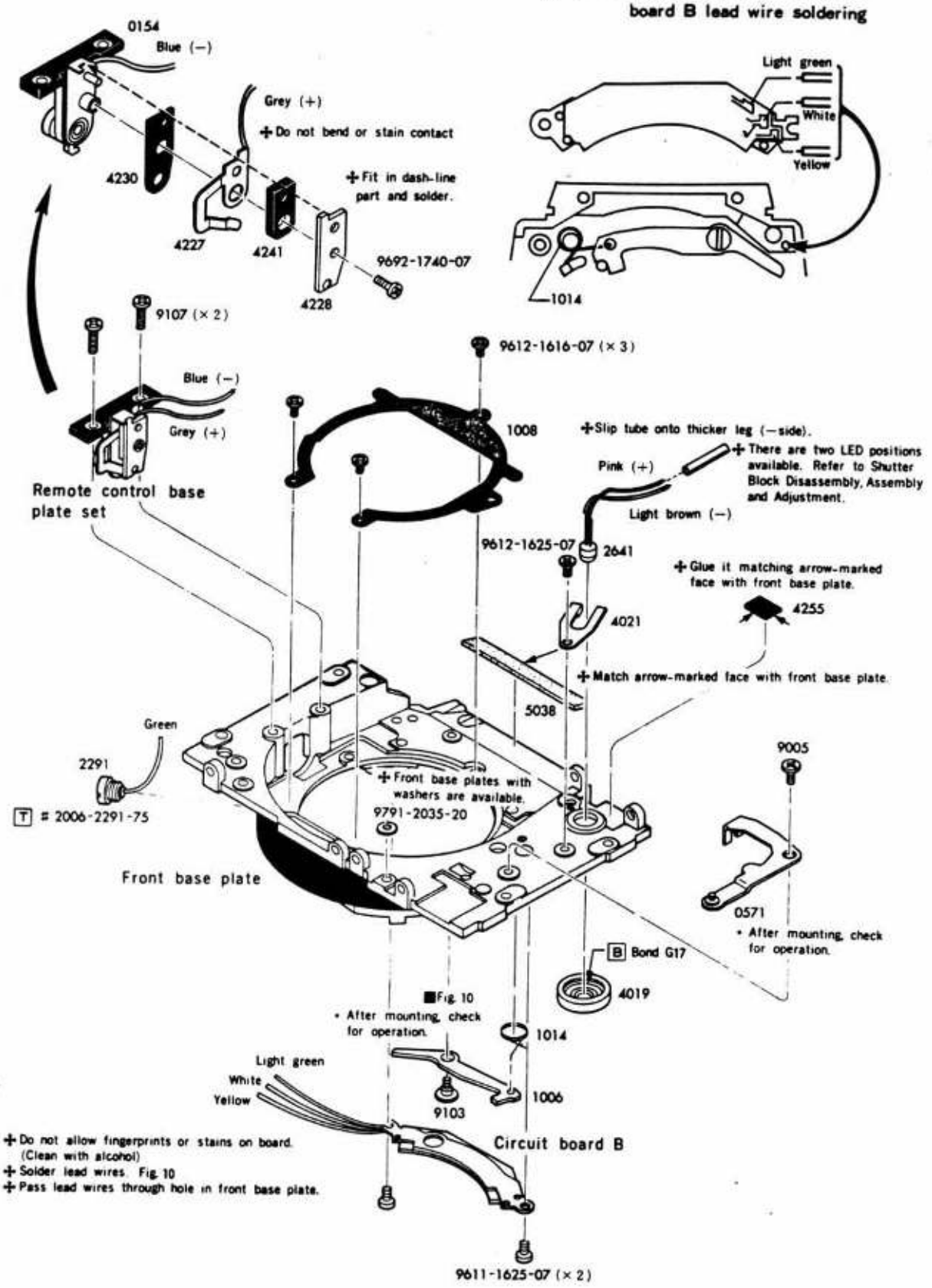
- After completing assembly, check for operation according to the following procedure.
  1. Cock mirror return lever in the direction of arrow until it is locked by mirror return lever locking claw.
  2. Shift release bar in the direction of arrow. Then preset lever operates to raise mirror.
  3. When mirror return locking claw is pushed in the direction of arrow, mirror and preset is returned.



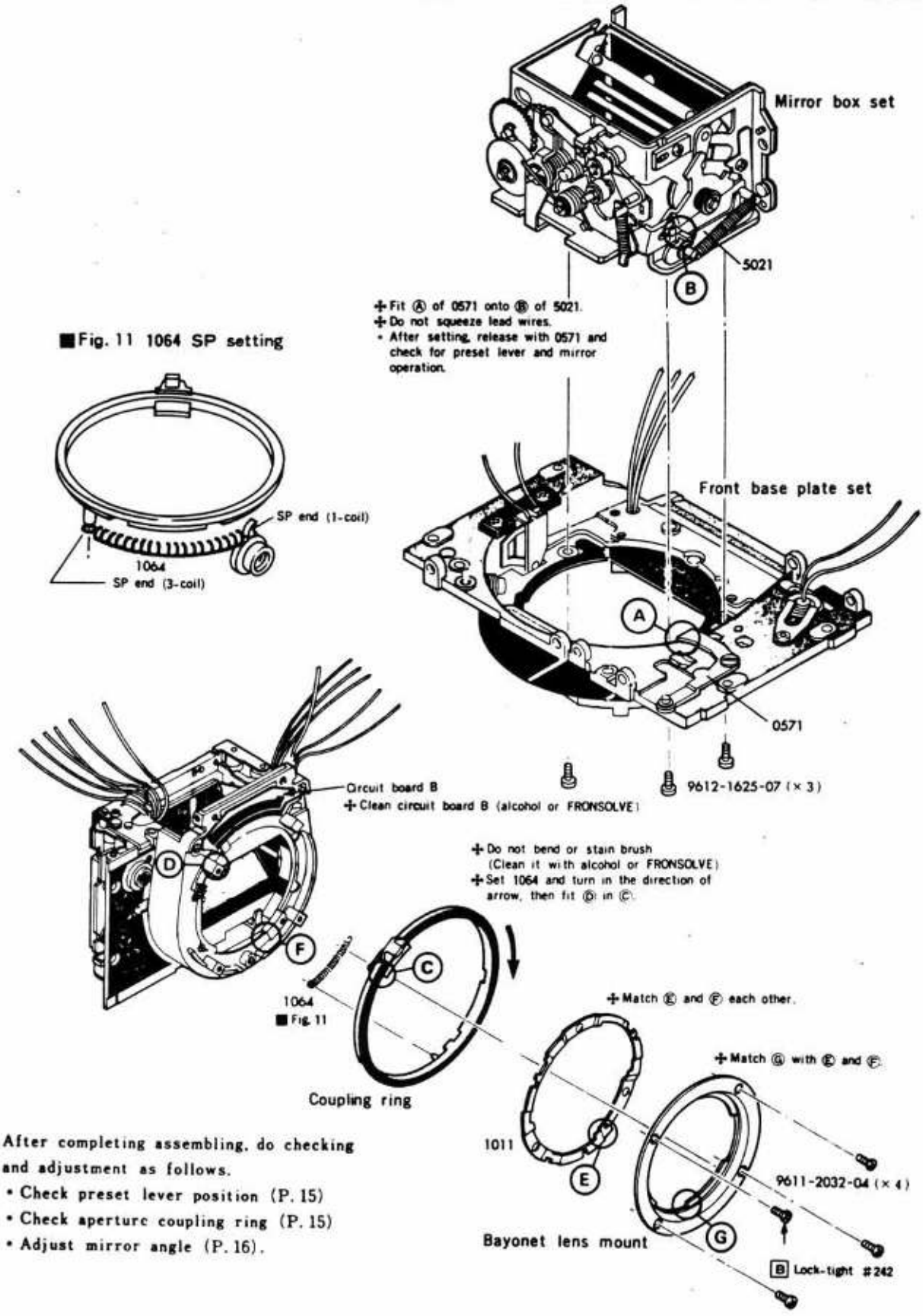
■ Fig. 9 5042, 5044, 5046, 5051 SP setting

9 Front base plate

■Fig. 10 1014 SP setting and circuit board B lead wire soldering



10 Front base plate set Bayonet lens mount


Mirror box set
5021
B
✢ Fit Ⓐ of 0571 onto Ⓑ of 5021.
✢ Do not squeeze lead wires.
• After setting, release with 0571 and check for preset lever and mirror operation.
Front base plate set
A
0571
9612-1625-07 (× 3)
Orcuit board B
✢ Clean circuit board B (alcohol or FRONSOLVE)
D
✢ Do not bend or stain brush (Clean it with alcohol or FRONSOLVE)
✢ Set 1064 and turn in the direction of arrow, then fit Ⓓ in Ⓒ.
F
C
1064
■ Fig. 11
Coupling ring
✢ Match Ⓔ and Ⓕ each other.
✢ Match Ⓖ with Ⓔ and Ⓕ.
1011
E
9611-2032-04 (× 4)
G
Bayonet lens mount
B Lock-tight #242

■ Fig. 11 1064 SP setting

■ After completing assembling, do checking and adjustment as follows.

- Check preset lever position (P. 15)
- Check aperture coupling ring (P. 15)
- Adjust mirror angle (P. 16).

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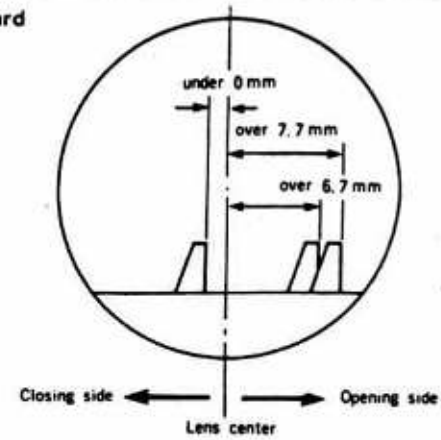
■ Preset lever position checking

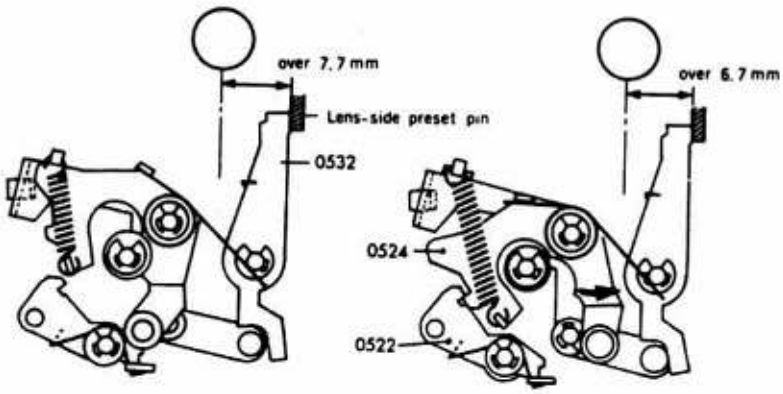
■ **Measuring instrument:** Standard lens (50mm F 1.4)

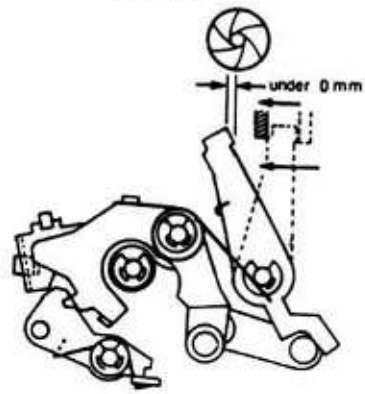
1. Mount standard lens with minimum aperture setting. The aperture should become released when mirror return lever lock claw (0522) is disengaged. (Preset lever: over 7.7 mm)
2. When mirror return lever (0524) is cocked until stopping on 0522, aperture should become released. (Preset lever: over 6.7 mm)
3. With release operation lever C (0571) released, preset lever operated, and mirror raised, aperture should be at minimum setting. (Preset lever: below 0)

■ **Standard**

Unit: mm



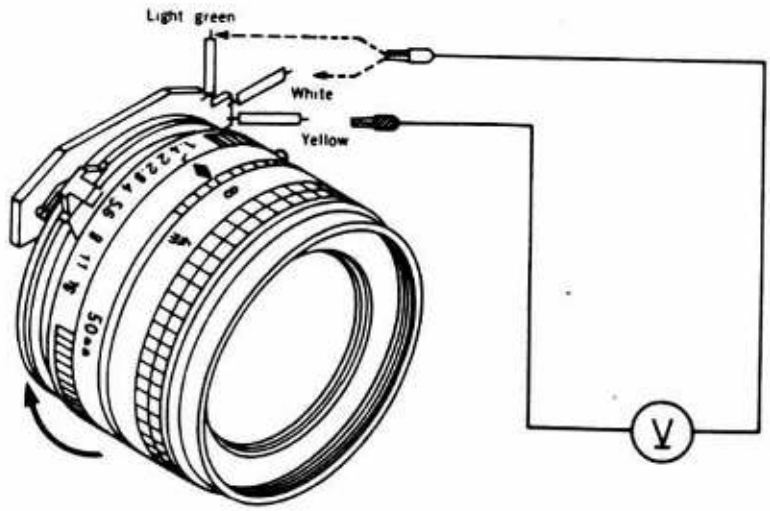




■ Aperture coupling ring

■ **Measuring instruments:** Circuit tester.
: Standard lens (50 mm F 1.4)

1. Operate aperture coupling ring up to the stop position in the direction of arrow and return it slowly. Then, it should not be forced back by coupling ring spring (1064) and the operation should be smooth with out abnormal noise.
2. Mount standard lens, connect circuit board B (0152) leads (light green and yellow) as illustrated below, operate aperture ring.
   Then, there should be no skip or standstill of resistance value. (Small resistance with aperture opened, large resistance with minimum aperture.)
3. Also connect leads (white and yellow) as illustrated below. Then, there should be no skip or standstill of resistance value.
   (Large resistance with aperture opened, small resistance with minimum aperture.)
4. Lightly push coupling ring claw in the direction of arrow. Then, there should be no skip or standstill of resistance value.

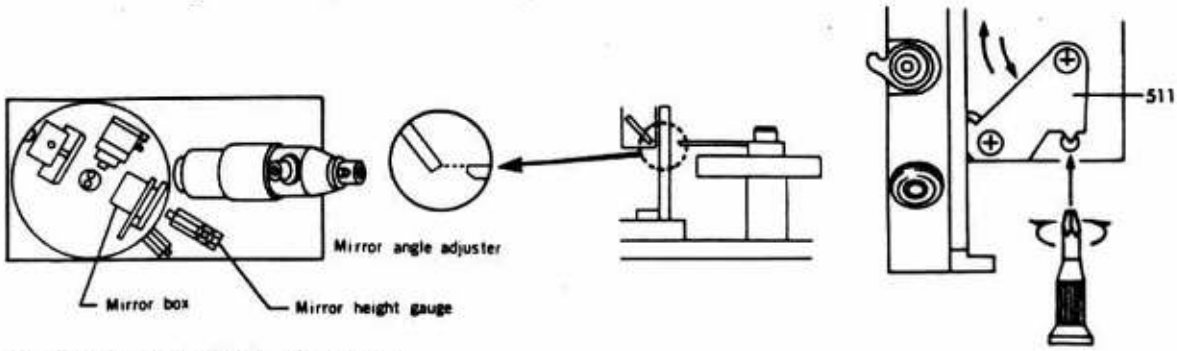


■ Mirror angle adjustment

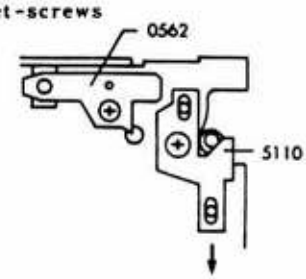
■ **Measuring instrument:** Mirror angle adjuster (Model MA-Ⅱ)

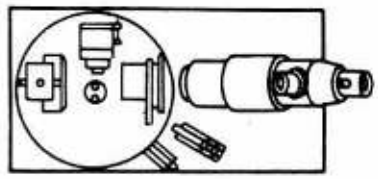
■ **Standard value** : 45°±20′

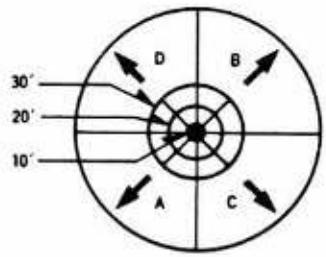
1. Mirror position (height) adjustment
   a. Set mirror box and front base plate assembly on the measuring instrument. Place it opposite to the mirror height gauge.
   Then make the position adjustment by inserting a screwdriver (with thick end, which doesn't touch flare preventive seat) into adjusting hole of mirror stopper (5111) so that gauge end is matched with mirror end.
   b. After adjustment, tighten mirror stopper set-screw and check for deflection.

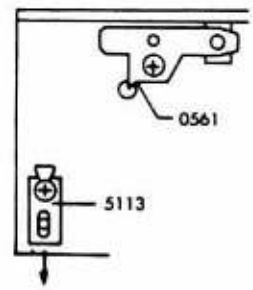


2. Mirror angle (45°) adjustment.
   a. Put mirror box opposite to auto meter, and let mirror support stopper A (5110) and B (5113) be free in the direction of arrow.
   b. Look into auto meter and make the adjustment by inserting screwdriver into adjusting hole of mirror operation lever B shaft base (0561, 0562) from mirror box side so that the chart image center comes to the cross.
   c. Tighten set-screw of mirror operation lever shaft base, and then check.
   d. After adjusting mirror angle, looking into auto meter to see that the chart image stays on the cross, shift mirror auxiliary stopper A (5110) B (5113) in the direction opposite to te arrow so that it comes in contact with mirror operation lever pin (9215) and mirror holder contact pin (9216), and then tighten set-screws









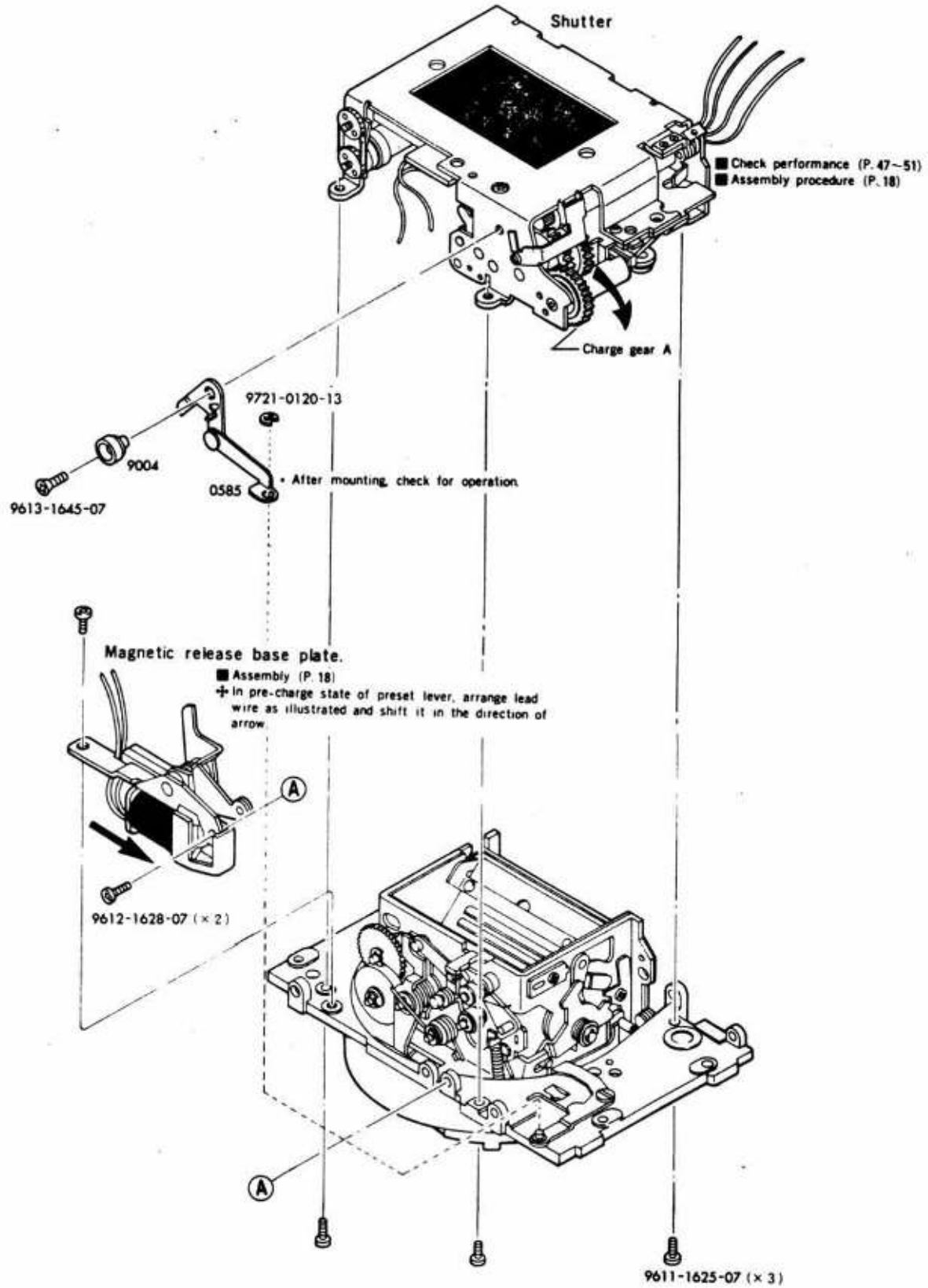
• Mirror operation checking

Operate mirror several times from back of mirror box. Then check that chart image is within standard value (45°±20′) and that chart image shows no change.

Check if mirror is declined or mirror height is changed.

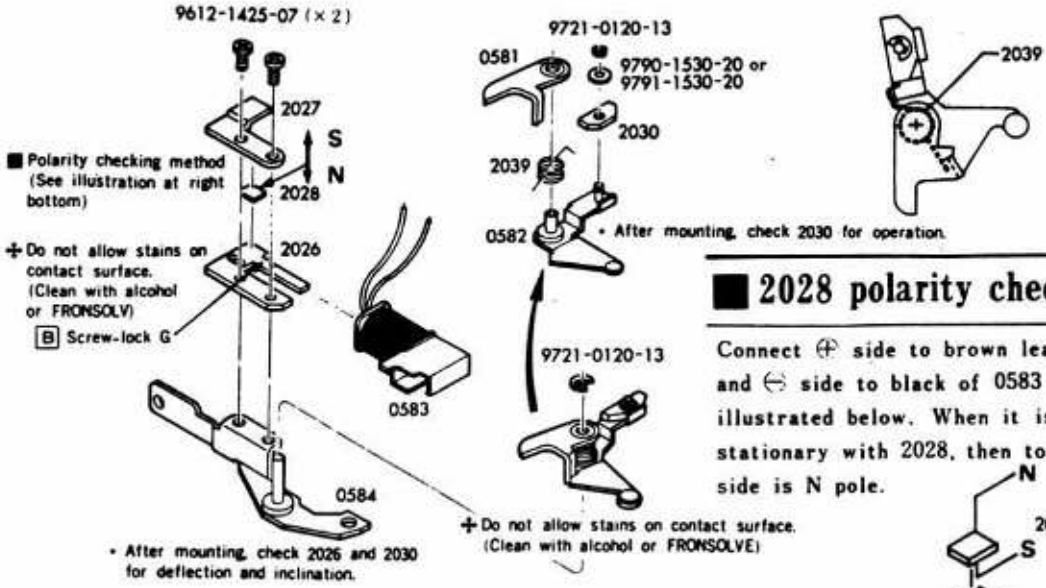
■ After checking mirror operation, apply screw-lock to each set-screw.

11 Shutter · Magnetic release base plate



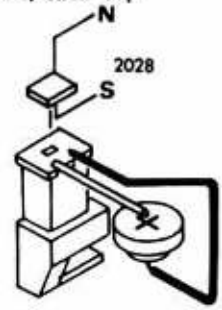
■ Magnetic release base plate assembly

■ Fig. 12 2039 SP setting



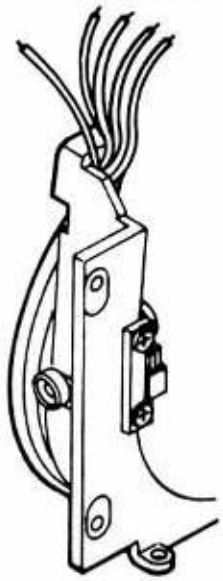
■ 2028 polarity checking method

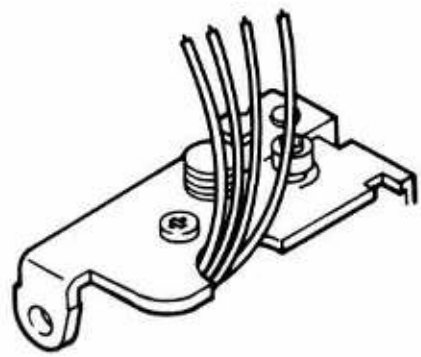
Connect ⊕ side to brown lead and ⊖ side to black of 0583 as illustrated below. When it is stationary with 2028, then top side is N pole.



■ Shutter assembly procedure

1. Arrange lead wires of shutter block and front base plate as illustrated below.
2. Let mirror return lock claw (0522) be free on front base plate side to make it in pre-charge state. (P. 17)
3. On shutter block side, operate charge gear A (2105) in the direction of arrow and mount shutter block in the state of winding completed. (P. 17)

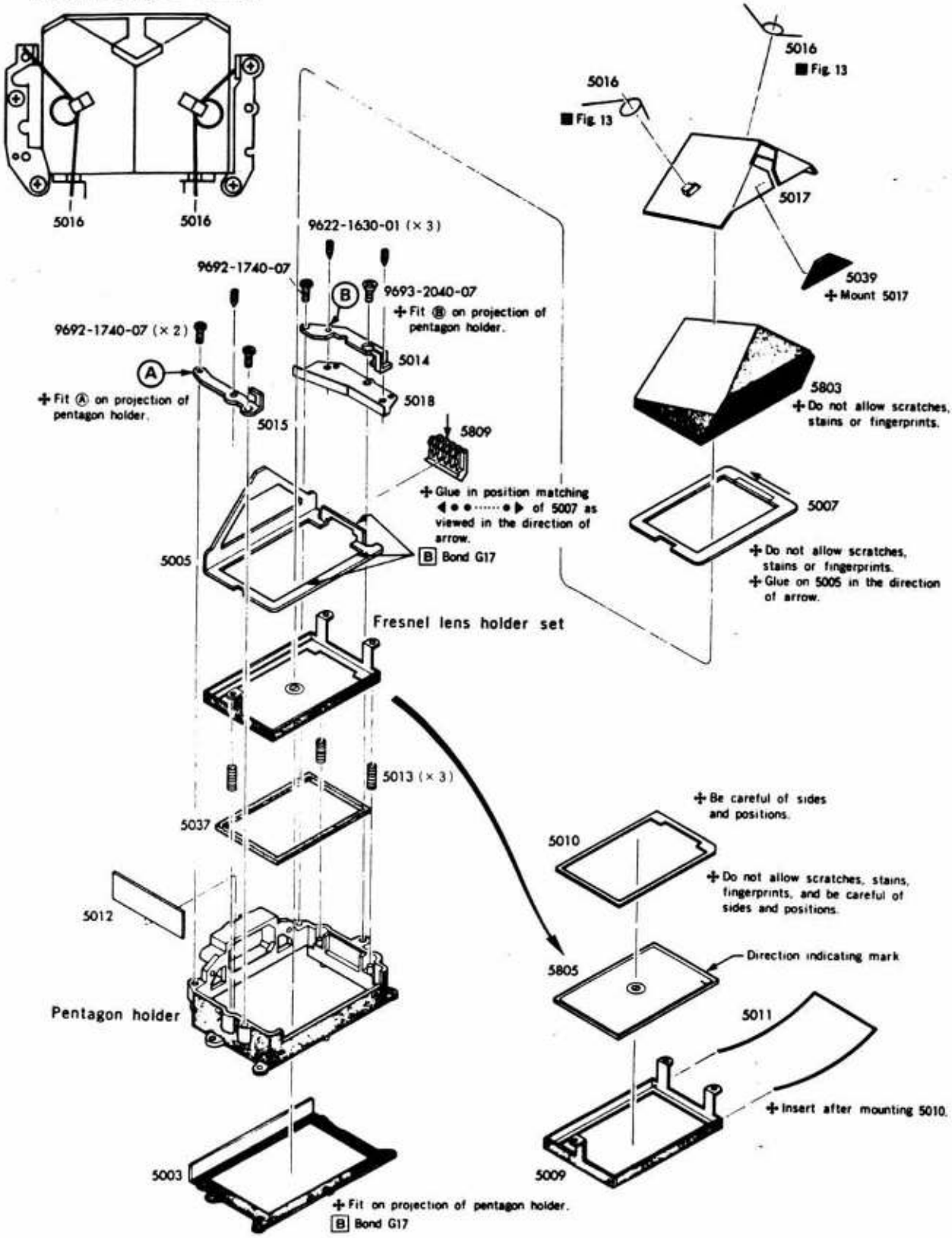




• After mounting, cock mirror return lever (0524) to release, and check that shutter operate properly.

■ Pentagon holder assembly

■ Fig. 13 5016 SP setting



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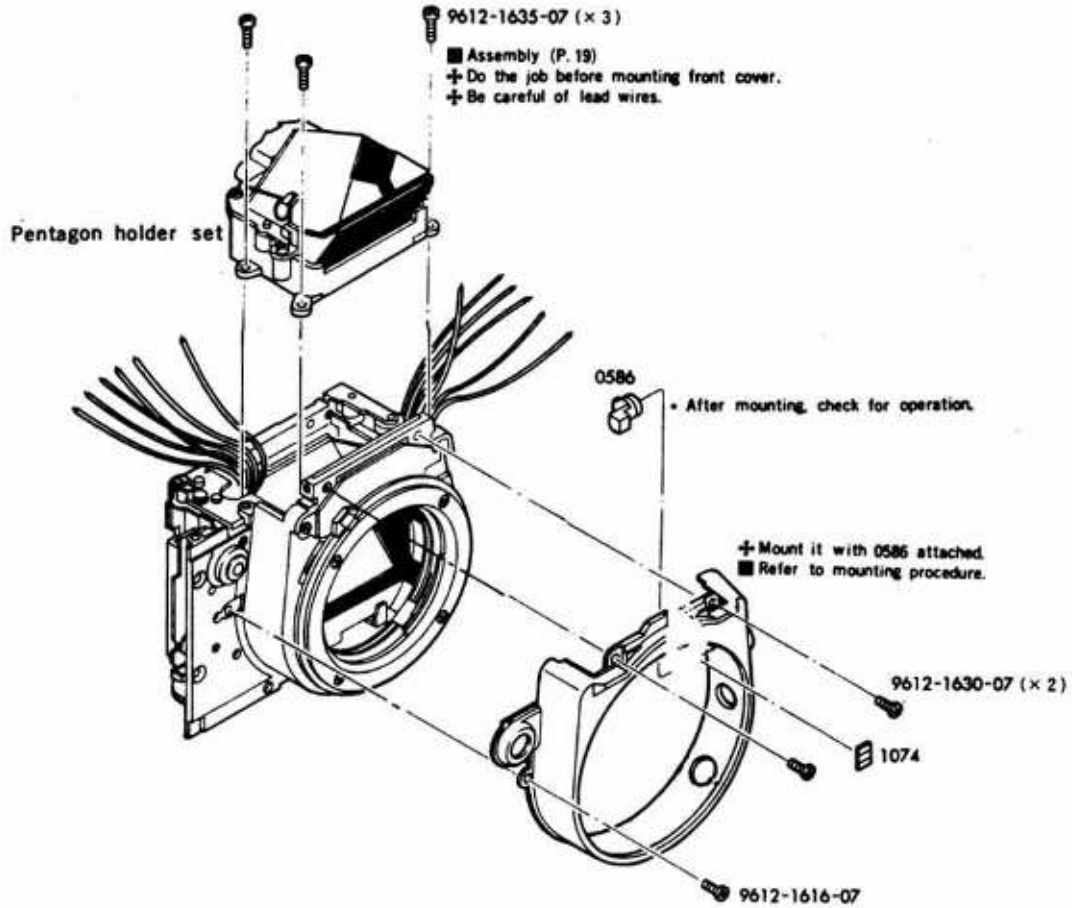
[12] Pentagon holder set·Front cover



■ Front cover mounting procedure

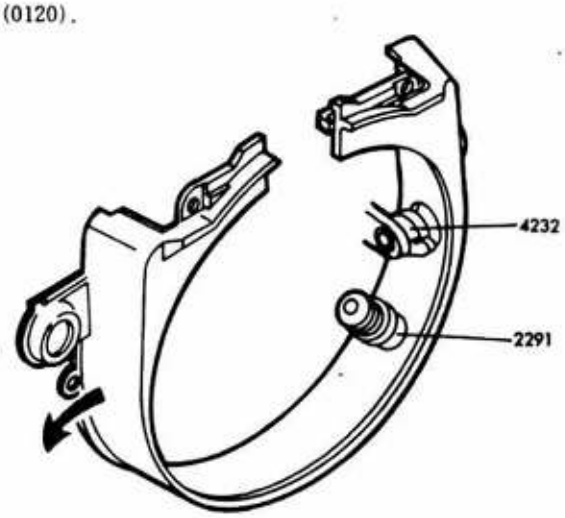
1. Widen front cover in the direction of arrow and fit it in remote control terminal (4232) and synchro terminal (2291) on the right, and in aperture coupling ring (0120).
2. Operate aperture coupling (0120) to the right to fit it on the left side of front cover.

• Precautions for mounting

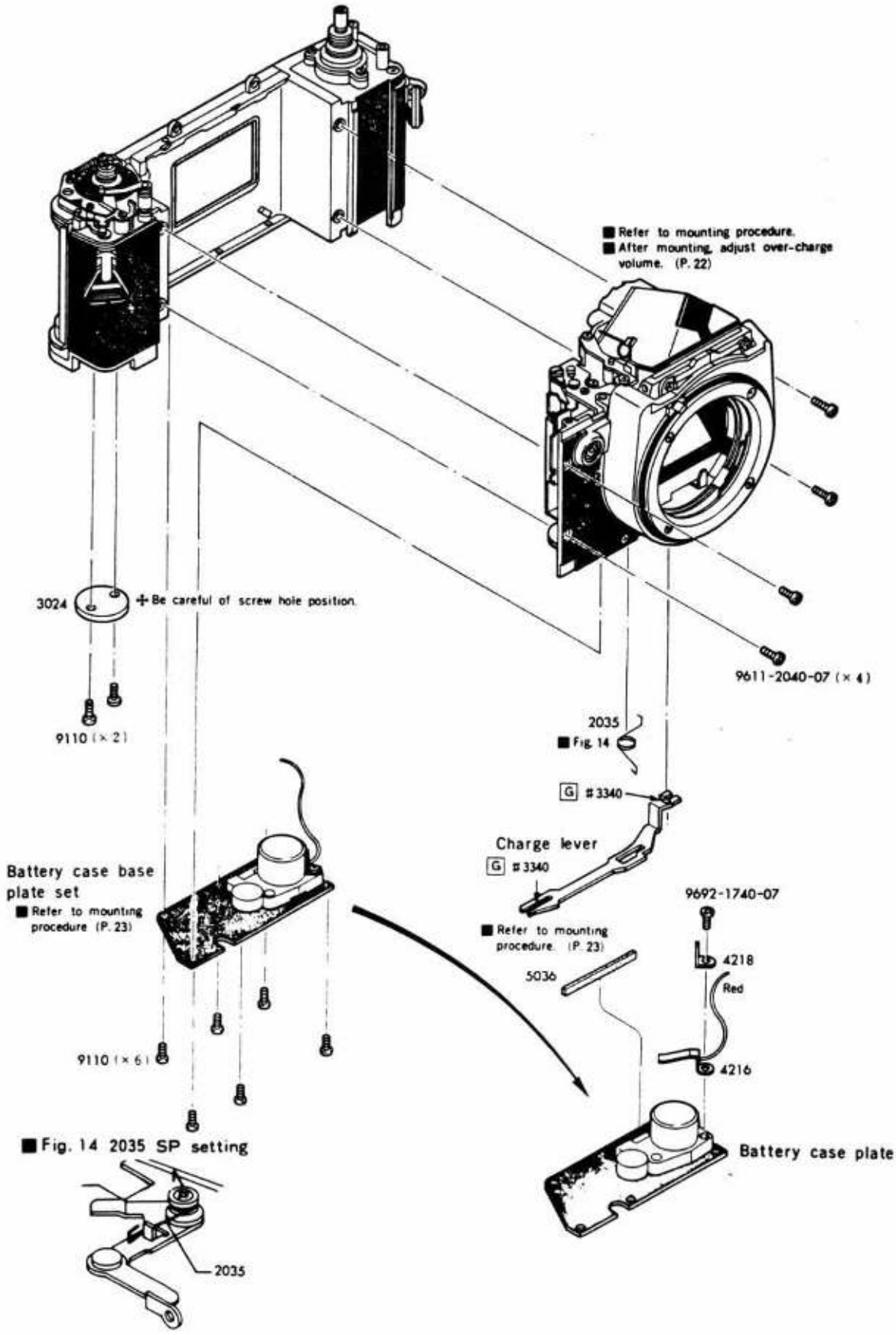
1. Do not bend brush of aperture coupling ring (0120).
2. If front cover connection is broken, secure it with set-screws, taking care not to allow any difference in level.

• Checking after mounting

1. Remote control terminal (4232) and synchro terminal (2291) should be fitted in front cover.
2. Lens lock button (0586) should be smooth in operation.
3. Operate coupling ring to the right up to stop position and slowly return it.
   Then, it should move smoothly without being forced back by coupling ring SP (1064) or abnormal noise. (See Page. 15.)



13 Front base plate·Charge lever·Battery case base plate set



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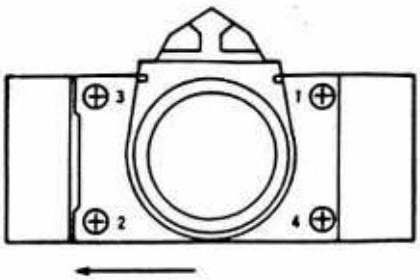
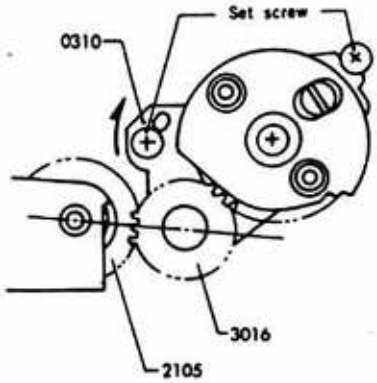
■ Front base plate set mounting procedure

1. Mount front base plate set, with body and shutter in the state of pre-charge, and temporarily fasten front base plate set-screws and shift the plate in the direction of arrow, then tighten the set-screws in the order of numbers.



2. Shift winding shaft receiver (0310) in the direction of arrow so that the − mark of charge gear A (2105) is engaged with shutter charge gear C (3016) as illustrated below, and then tighten up set-screws.



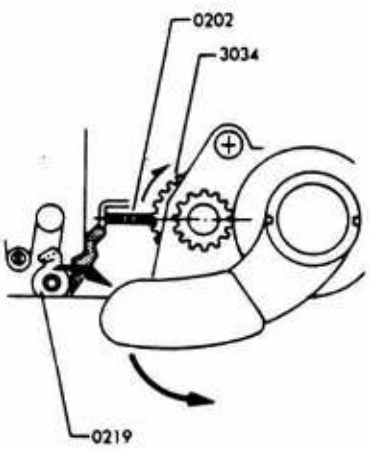
■ Over-charge volume adjustment

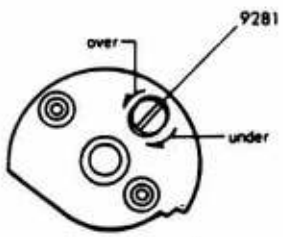
• Over-charge or under-charge checking

1. Set rewinding lever (3020) free and do winding. (Only shutter is charged).
   If winding is heavy towards ending, shutter is over-charged. (Do not wind by force.)
2. Charge mirror return lever (0524). (It is charged on mirror box side.)
3. Operate release connecting lever C (0571) to release shutter.
   If shutter is not released with mirror raised, it is under-charged. At that time, mirror is kept raised. Then releasing mirror return lever lock claw (0522) causes mirror to be lowered and mirror box to get into the state of pre-charge.
   However, shutter is still under-charged.

• Over-charge volume adjustment

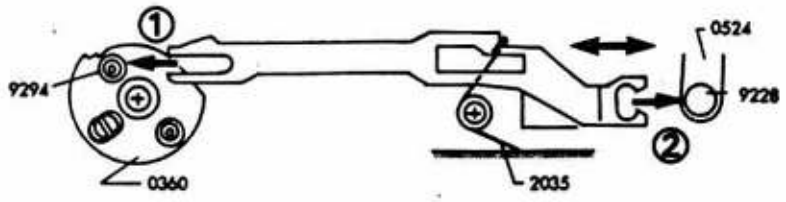
1. Do winding to operate 2nd curtain stop lever (0219) in the direction of arrow (charge on shutter side). Adjust eccentric screw (9281) of shutter charge gear D (0350) at the bottom of body so that sprocket idle gear (3034) is over-charged by 1 tooth (3°40′) from the position of control base plate (0202).
2. If adjustment is impossible, re-adjust in accordance with front base plate mounting procedure.





■ Charge lever mounting procedure

1. Cock mirror return lever (0524).
2. Insert charge lever (3016) into charge pin (9294) of charge control plate (0360), then set release operation lever spring (2035) as illustrated below.
3. Set charge lever (3016) on charge pin (9228) of mirror return lever (0524).
   Caution: Take care not to deform charge lever and mirror return lever.

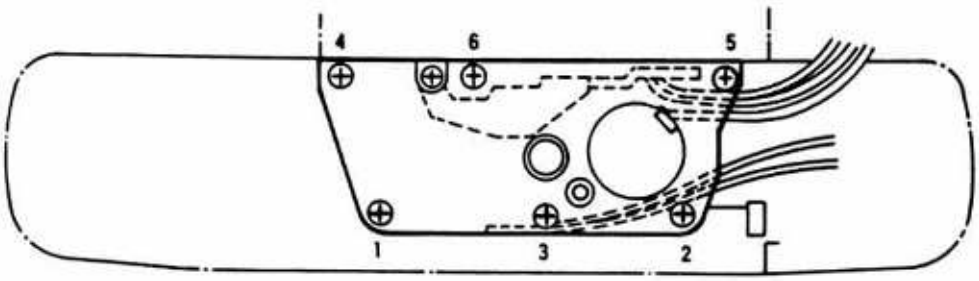


• After mounting, do the following checks.

1. Winding operation is smooth without catching or the like.
2. Shutter and preset are charged with over-charge volume assured.
3. Release magnet does not become loose due to winding shock or the like.
4. When release connecting lever C (0571) is operated, preset mirror mechanism operates and shutter is release. But the curtain does not open when shutter is at high speed condition.
5. After releasing, when winding stop lever is set free by charge lever, the next winding is possible.
6. Clearance between charge lever (3016) and charge pin (9228) is not excessive.

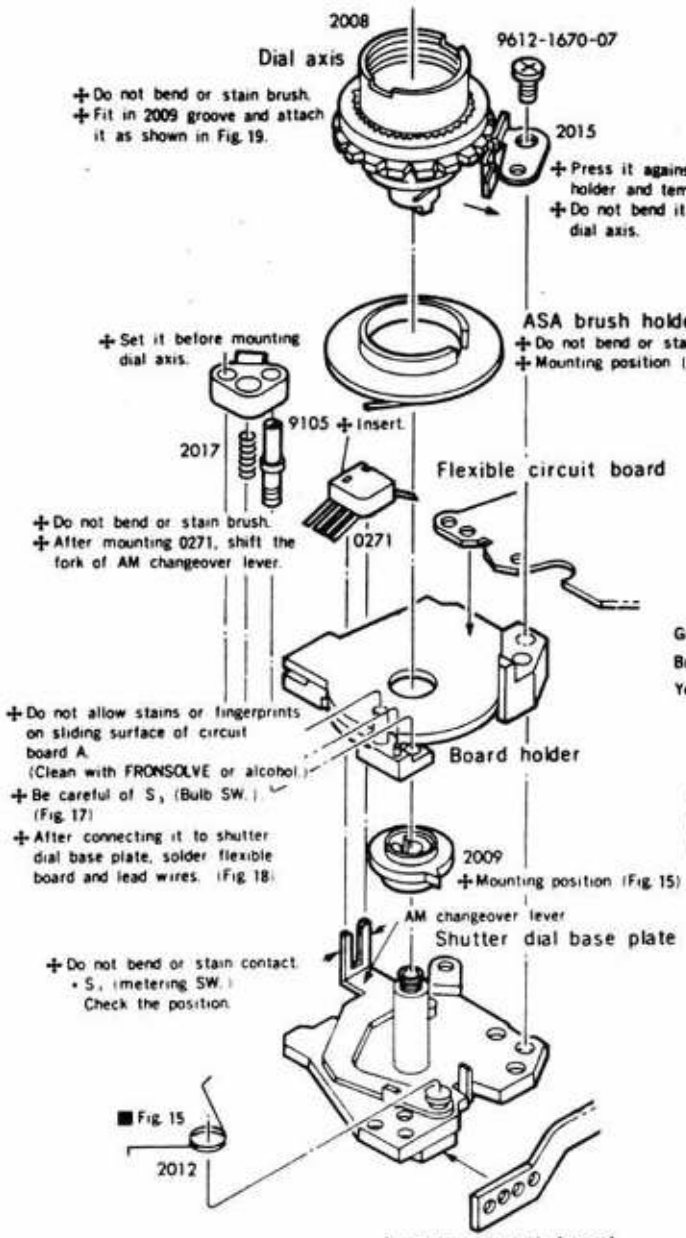
■ Battery case set mounting procedure

1. Arrange lead wires on body side (green and black leads for shutter; brown and black leads for release magnet.) and red lead for battery case as illustrated below.
2. Tighten set-screws of battery case in the order of numbers.

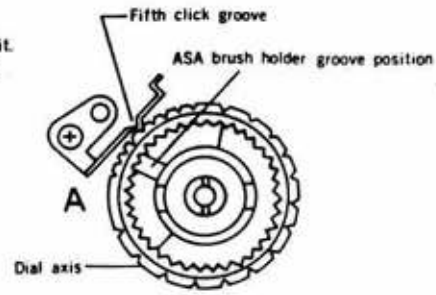


• After mounting, temporarily fasten lower cover. Make sure that winder (8731-200) can be smoothly mounted and winder-side connecting terminal and body-side winder connecting terminal (9243) can be connected to each other.

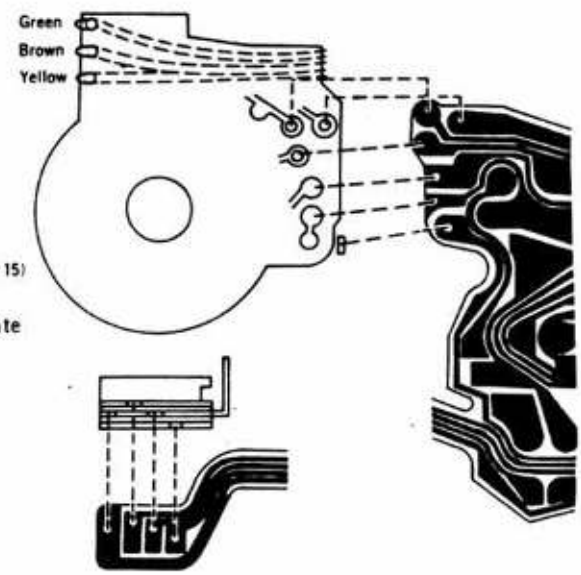
■ Shutter dial base plate assembly


2008
Dial axis
9612-1670-07
✢ Do not bend or stain brush.
✢ Fit in 2009 groove and attach it as shown in Fig. 19.
2015
✢ Press it against base plate holder and temporarily fasten it.
✢ Do not bend it when mounting dial axis.
ASA brush holder
✢ Do not bend or stain brush.
✢ Mounting position (Fig. 19.)
✢ Set it before mounting dial axis.
9105 ✢ Insert.
2017
Flexible circuit board
✢ Do not bend or stain brush.
✢ After mounting 0271, shift the fork of AM changeover lever.
0271
✢ Do not allow stains or fingerprints on sliding surface of circuit board A. (Clean with FRONSOLVE or alcohol.)
✢ Be careful of S1 (Bulb SW.) (Fig. 17)
✢ After connecting it to shutter dial base plate, solder flexible board and lead wires. (Fig. 18)
Board holder
2009
✢ Mounting position (Fig. 15)
AM changeover lever
Shutter dial base plate
✢ Do not bend or stain contact S2 (metering SW.) Check the position.
■ Fig. 15
2012
Flexible circuit board.

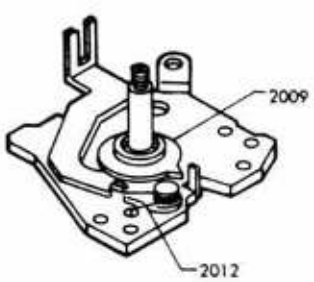
■ Fig. 19 ASA brush holder and dial axis setting position



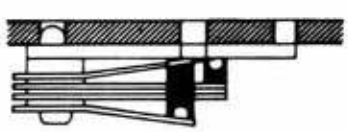
■ Fig. 18 Flexible circuit board and lead wire soldering.



■ Fig. 15 2012 SP setting and 2009 position

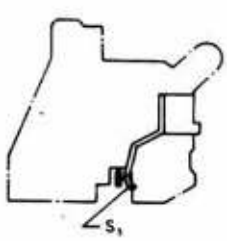


■ Fig. 16 S2 (metering SW.) S3 (release SW.) checking

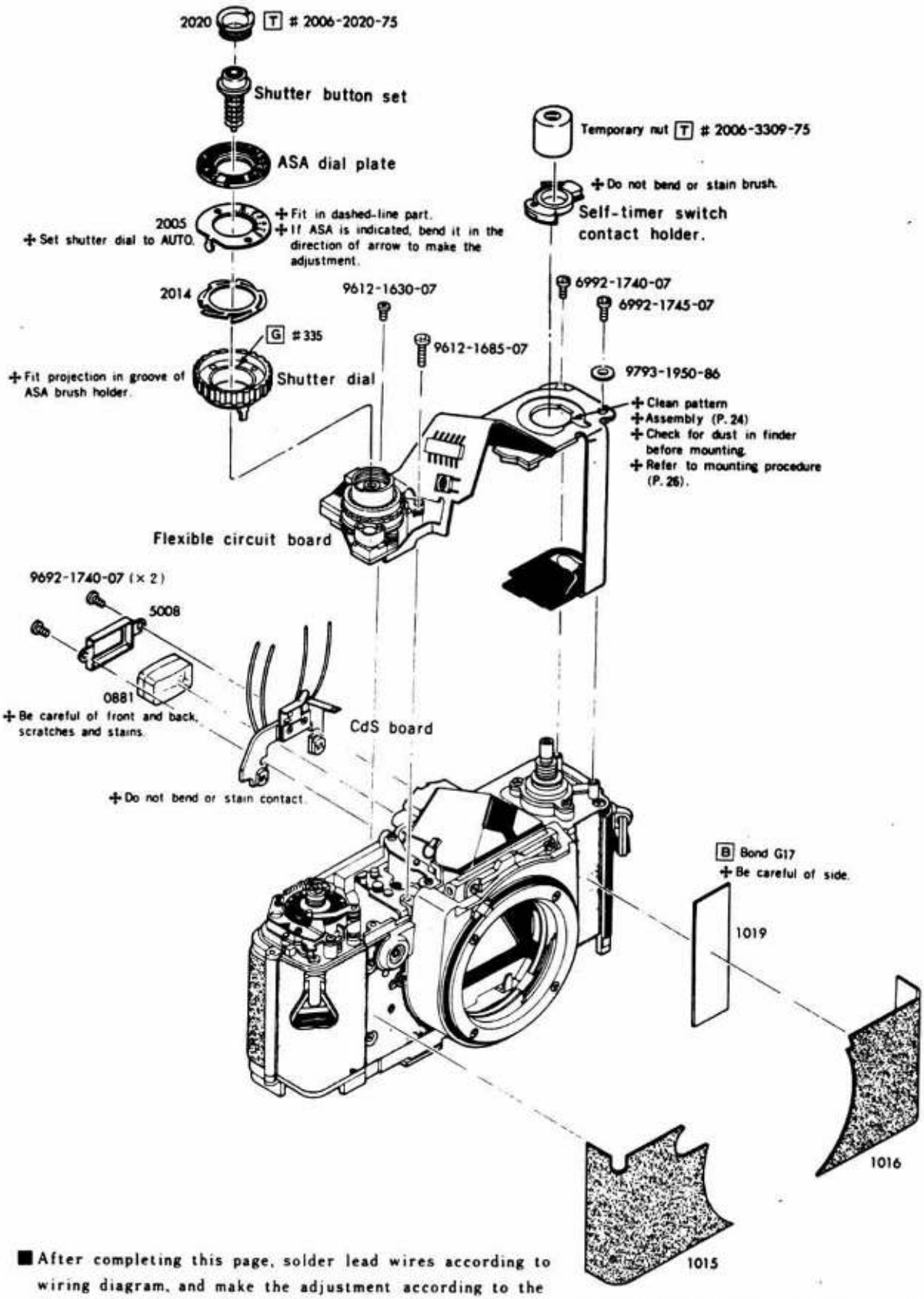


Each contact should be tight on each support.

■ Fig. 17 S1 (bulb SW.) position



14 CdS board·Flexible circuit board



■ After completing this page, solder lead wires according to wiring diagram, and make the adjustment according to the procedure given on and after Page 28.

✢ Glue after finishing adjustment and checks given on and after Page. 28.

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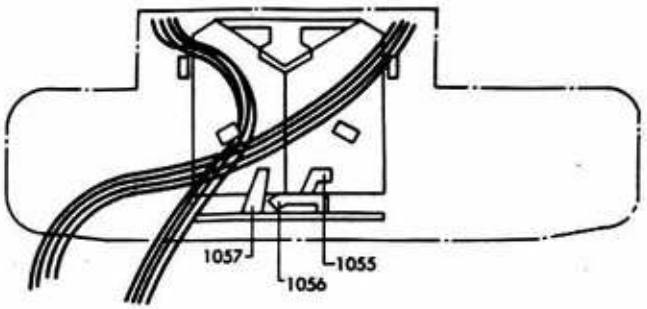
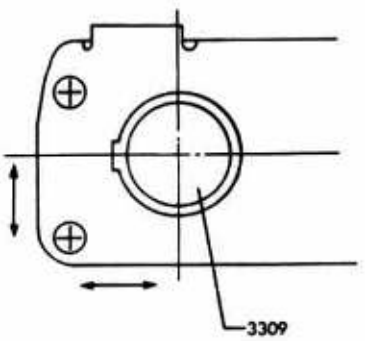
■ Flexible circuit board mounting procedure

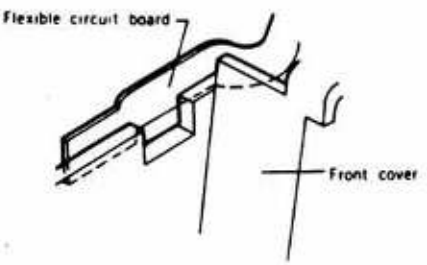
1. Arrange body side lead wires as illustrated below, and temporarily fasten flexible circuit board under contacts A, B, C (1055, 1056, 1057) of CdS board.

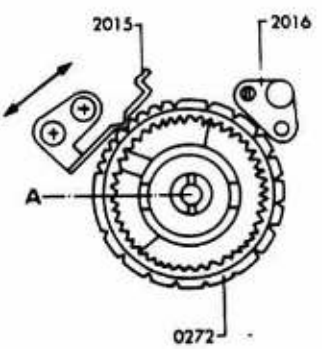


2. Mount LED board with rewind axis receiver (3309) positioned at center.
   • **NOTE:** Do not allow lead wires to be squeezed and LED board to become loose.

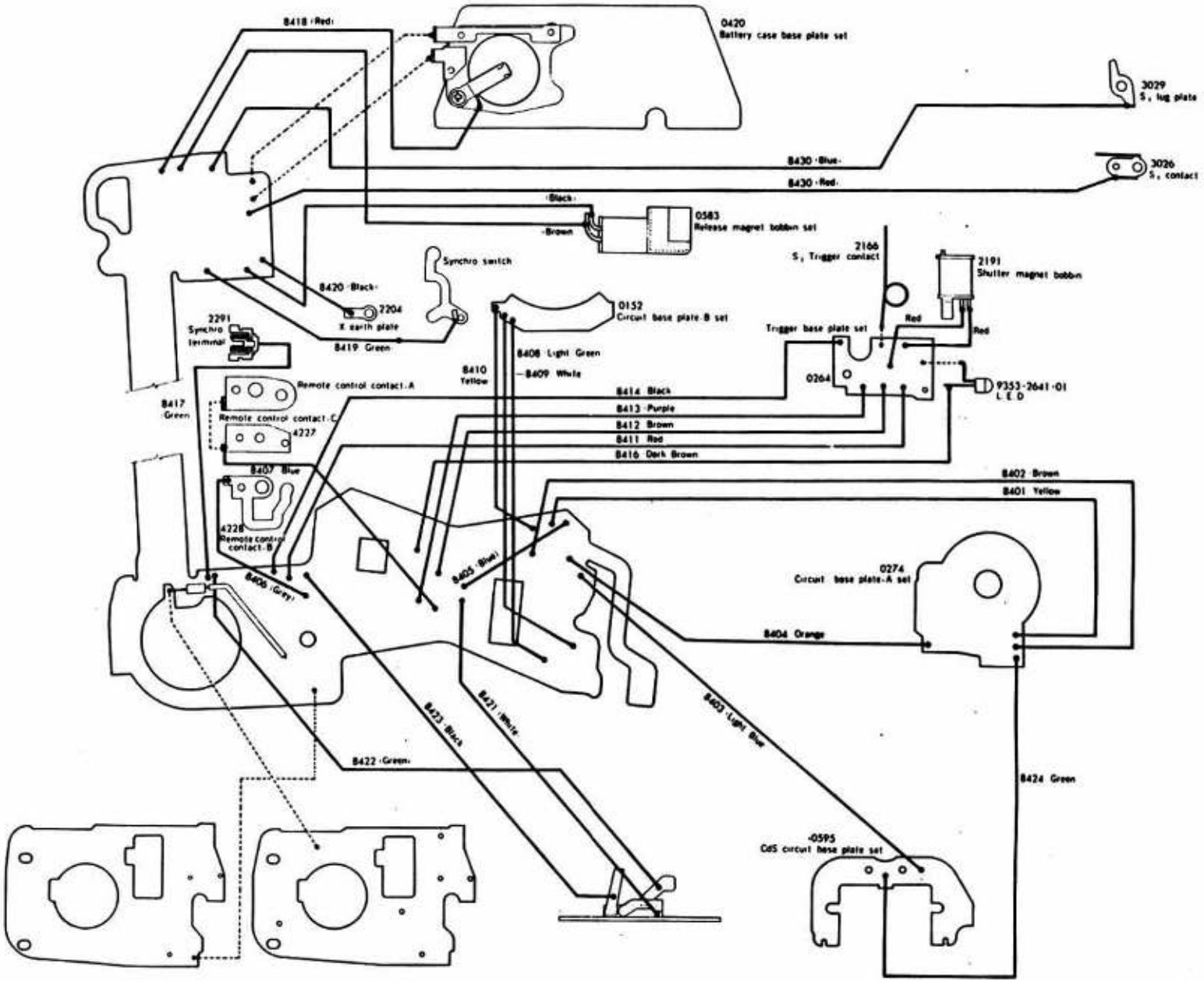


3. Insert flexible circuit board on shutter dial plate side as illustrated below.
   Temporarily fasten it with auto lock plate guide (2016) and two set-screws, and stop auto lock plate (2015) on dial axis (0272).
   Adjust spring position so that click spring (2015) in fitted in click groove as illustrated.
   • **Checking:** Slowly turn dial axis from right to left, then auto lock plate should get into lock position. When auto lock button is pushed again, it should be positioned in lock position.





■ Wiring Schematic Diagram



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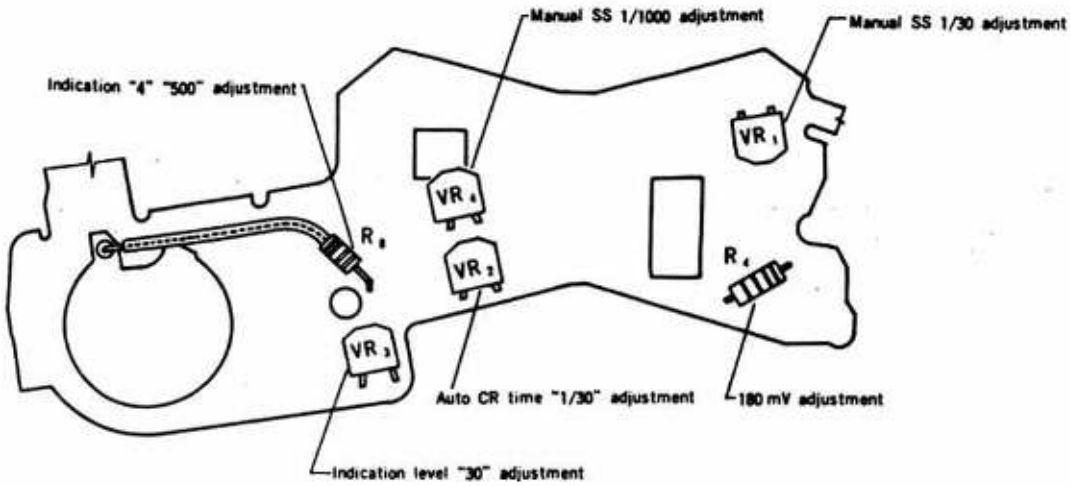
■ AUTO exposure adjustment

■ Variable resistor and fixed resistor adjustment.



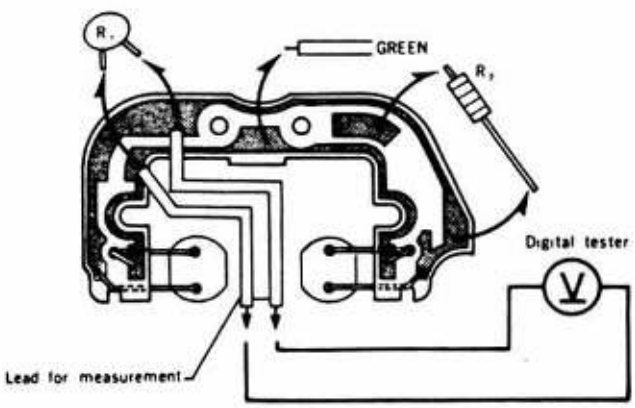
1 Measurement of CdS resistance value and selection of R_1, R_2

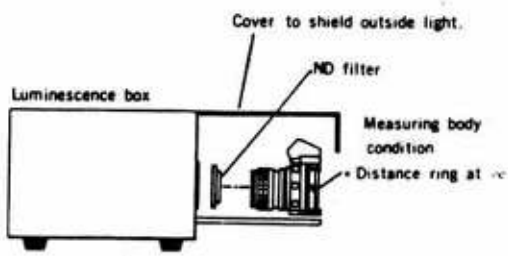
■ Measuring instruments:

: Digital tester (Type 2507)
: Luminescence box (Model L-222 or L-223)
: Standard lens (50 mm, F 1.4)
: ND filter (MINOLTA ND 50% FOR ADJUSTMENT)

■ Measuring method

1. Disconnect green lead of CdS board (0591) and soldered R_1 and R_2 as illustrated below. Then connect lead wire for measurement to R_1.





2. Measurement of $R_{HV}5$ (Resistance should be within 10~40KΩ)
Set digital tester range to "Ω", set ND filter on body and then measure resistance value at luminance EV 11 (ASA 100).
3. Measurement of $R_{HV}10$ (Resistance should be within 1.6~5.8KΩ)
With CdS connected as above, remove ND filter and measure resistance at luminance EV 15 (ASA 100).

■ Selection of R_1, R_2

From resistance values of $R_{BV}5$ and $R_{BV}10$ obtained by CdS measurement, R_1 and R_2 can be calculated as follows:

1. How to obtain from formula

$$R_2 = R_{BV}5 \left\{ \frac{1}{4}\left(\frac{R_{BV}10}{R_{BV}5}\right)^{0.1875} - \frac{R_{BV}10}{R_{BV}5} \right\} \quad \cdots\cdots ①$$

$$R_1 = \frac{(R_{BV}5)^2}{R_2} \quad \cdots\cdots ②$$

Pick up resistances which are proximate to the obtained resistance values from the following table, and then solder R_1, R_2 and lead wire (Green).

• **NOTE:** When R_2 is (−) in formula ①, the combination of CdS is defective.
When R_2 is larger than 1.8KΩ in formula ①, the combination of CdS is defective.
When R_2 is smaller than 0.11KΩ in formula ①, shortcircuit R_2 with lead wire.

Calculating value of R_1 (KΩ)	R_1 used (KΩ)	Calculating value of R_1 (KΩ)	R_2 used (KΩ)
$300 > R_1$	(270KΩ)	$0.245 > R_2 >$	(0.22KΩ)
$300 \leq R_1 < 360$	(330KΩ)	$0.245 \leq R_2 < 0.3$	(0.27KΩ)
$360 \leq R_1 < 430$	(390KΩ)	$0.3 \leq R_2 < 0.36$	(0.33KΩ)
$430 \leq R_1 < 515$	(470KΩ)	$0.36 \leq R_2 < 0.43$	(0.39KΩ)
$515 \leq R_1 < 620$	(560KΩ)	$0.43 \leq R_2 < 0.515$	(0.47KΩ)
$620 \leq R_1 < 750$	(680KΩ)	$0.515 \leq R_2 < 0.62$	(0.56KΩ)
$750 \leq R_1 < 910$	(820KΩ)	$0.62 \leq R_2 < 0.75$	(0.68KΩ)
$910 \leq R_1 < 1100$	(1000KΩ)	$0.75 \leq R_2 < 0.91$	(0.82KΩ)
$1100 \leq R_1 < 1350$	(1200KΩ)	$0.91 \leq R_2 < 1.1$	(1 KΩ)
$1350 \leq R_1 < 1650$	(1500KΩ)	$1.1 \leq R_2 < 1.35$	(1.2 KΩ)
$1650 \leq R_1 < 2000$	(1800KΩ)	$1.35 \leq R_2 < 1.65$	(1.5 KΩ)
$2000 \leq R_1 < 2450$	(2200KΩ)	$1.65 \leq R_2$	(1.8 KΩ)
$245 \leq R_1$	(2700KΩ)		

2. How to obtain from table

a. Select value of $R_{BV}5$ or proximate value from vertical axis.

b. Select value of $R_{BV}10$ or proximate value from horizontal axis.

c. Find the intersection of a and b.

The values thus obtained are R_1, R_2 and lead wire (Green): R_1 at top and R_2 at bottom. Then solder R_1 and R_2 obtained from the table.

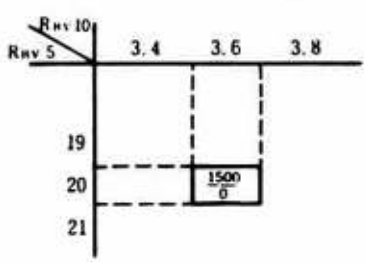
• **NOTE:** When R_2 is 0, connect lead wire to R_2.
If the intersection of $R_{BV}5$ and $R_{BV}10$ is blank, the combination of CdS is defective.

(Ex.) $R_{BV}5 = 20.4K\Omega$, $R_{BV}10 = 1.69K\Omega$

a. Approximate value of $20.4K\Omega = 20K\Omega$.

b. Approximate value of $3.69K\Omega = 3.6K\Omega$.

c. Place 20KΩ on vertical axis and 3.6KΩ on horizontal axis. From the intersection, R_1: 1500KΩ and R_2: 0KΩ can be obtained.



■ Calculation Table

Top: R_1 (KΩ)
Bottom: R_2 (KΩ) in ⊟

R_{BV} 5 \ R_{BV} 10 (KΩ)	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5	5.2	5.4	5.6
12	330/0.47	470/0.33	1000/0.22																		
13	270/0.56	390/0.47	560/0.27	1200/0																	
14	270/0.68	330/0.56	470/0.47	680/0.21	1800/0.22																
15	270/0.82	330/0.68	390/0.56	560/0.39	820/0.27	2200/0															
16	270/1.0	270/0.82	390/0.68	470/0.56	680/0.39	1000/0.22															
17	270/1.2	330/1.0	330/0.82	390/0.68	560/0.56	680/0.39	1200/0.22														
18	270/1.5	270/1.0	330/1.0	390/0.82	470/0.68	680/0.56	820/0.39	1500/0.22													
19		270/1.2		390/1.0	470/0.82	560/0.68	680/0.56	1000/0.39	1800/0.22												
20		270/1.5		330/1.0	390/1.0	470/0.82	560/0.68	820/0.47	1200/0.33	2200/0.22	1500/0										
21	270/1.8		330/1.2			470/1.0	560/0.82	680/0.68	1000/0.47	1200/0.33	2700/0.22										
22		330/1.5		390/1.2			560/1.0	680/0.82	820/0.68	1000/0.47	1500/0.33										
23							470/1.0		680/0.82	820/0.56	1200/0.47	1800/0.27									
(KΩ) 24						470/1.2			680/1.0	820/0.82	1000/0.56	1200/0.47	1800/0.27								
25		330/1.8		390/1.5				560/1.0		680/0.82	820/0.82	1000/0.56	1500/0.47	2200/0.27							
26								470/1.2		680/1.0		1000/0.68	1200/0.56	1500/0.39	2700/0.27						
27				390/1.8				470/1.5	560/1.2	680/1.2	820/1.0	1000/0.82	1200/0.68	1200/0.56	1800/0.39						
28												820/1.0	1000/0.82	1200/0.68	1500/0.56	2000/0.39					
29							470/1.8		560/1.5		680/1.2	680/1.0	820/1.0	1000/0.82	1200/0.68	1500/0.56	2200/0.37				
30											680/1.5	680/1.2		1000/1.0	1000/0.82	1200/0.68	1800/0.56	2700/0.33			
31											560/1.5		820/1.2	820/1.0		1200/0.82	1500/0.68	1800/0.47	2700/0.33		
32									560/1.8				680/1.5	820/1.0		1000/1.0	1200/0.82	1500/0.68	2200/0.47		
33														820/1.5				1200/0.82	1800/0.68	2200/0.47	
34															820/1.2			1200/1.0	1500/0.83	1800/0.56	2700/0.47
35												680/1.8		680/1.5	820/1.5		1000/1.2	1000/1.0	1200/1.0	1500/0.82	2200/0.56
36																	1000/1.5	1000/1.2		1500/1.0	1800/0.58
37																820/1.8	820/1.5		1000/1.2	1200/1.0	1500/0.82
38																					1200/1.0
39																		1000/1.5		1200/1.2	
40																		1000/1.8			

2 Determination of R_4 —180 mA adjustment—

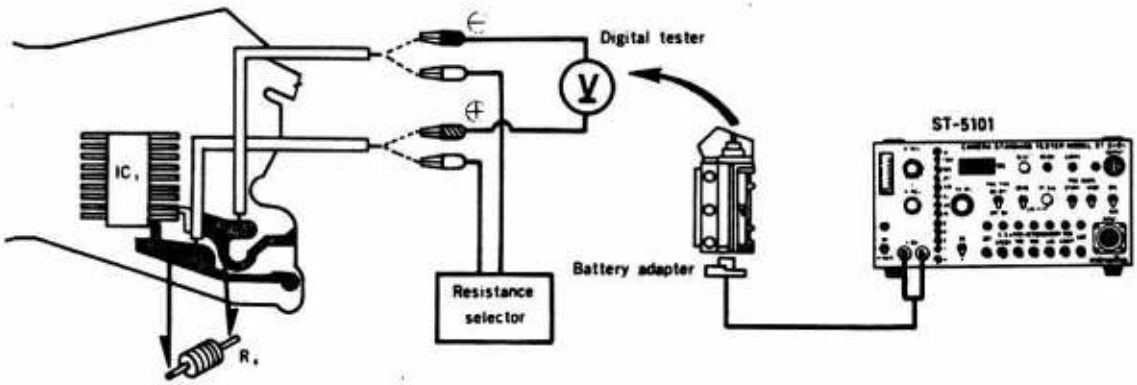
■ **Measuring instruments:**

: Camera standard tester (ST-5101) or
Constant voltage D.C power supply (Model E-1 or E-2)
: Resistance selector (Model RS-Ⅲ)
: Digital tester (Type 2507)
: Battery adapter (2006-0415-75)

■ **Standard value:** 180±2 mV

■ **Adjustment procedure**

1. Disconnect R_4 as illustrated below. Connect lead wire for measurement to R_4 (terminals ⑱, ⑲ of IC-1) and then set it on the measuring instrument.



2. Set power source voltage at 2.8V and metering switch (S_1) to ON. Then select R_4 resistance by the following method.
   a. Change the range of Rp resistance selector to select Rp resistance where the digital tester indicates around 180 mV.
   b. From the obtained Rp resistance, select R_4 resistance which is proximate to 180 mV from the table below. Then solder it to terminals ⑱, ⑲ of IC-1.

For example, when the resistance value of Rp resistance selector is 18 KΩ, the value indicated on digital tester is to be V 18 (mV).		Comparison of voltage (mV)	R_4 used (KΩ)
Resistance of Resistance selector (KΩ)	Indication of digital tester (mV).		
18	V_{18}	$V_{18} - 180 \pm 2$	18
20	V_{20}	$V_{18} < 180 \leqq V_{20}$	18
24	V_{24}	$V_{20} < 180 \leqq V_{24}$	22
30	V_{30}	$V_{24} < 180 \leqq V_{30}$	27
36	V_{36}	$V_{30} < 180 \leqq V_{36}$	33
47	V_{47}	$V_{36} < 180 < V_{47}$	39
62	V_{62}	$V_{47} - 180 \pm 2$	47
100	V_{100}	$V_{47} < 180 \leqq V_{62}$	56
200	V_{200}	$V_{62} < 180 \ll V_{100}$	68
∞	V_∞	$V_{62} \ll 180 < V_{100}$	82
		$V_{100} - 180 \pm 2$	100
		$V_{200} - 180 \pm 2$	200
		$V_{200} < 180 \ll V_\infty$	200
		$V_{200} \ll 180 < V_\infty$	390

   c. After soldering R_4 resistor, remove Rp resistance selector. Then make sure that indication of digital tester is 180±2 mV.

(Ex.) When Rp resistance is 24KΩ, indication of digital tester is 175 mV; and when Rp is 30 KΩ, the indication is 181 mV, $V_{24} - 175 < 180 < 181 - V_{30}$. Therefore, R_4 is 27 KΩ as obtained from the table.

3 Adjustment of VR_2 —AUTO Shutter speed adjustment—

■ Measuring instruments:

: Camera standard tester (ST-5101), or Digital time counter (TC-1) and Constant voltage D.C power supply (Model E-1 or E-2).
: Luminescence box (L-222 or L-223)
: Standard lens (50 mm F 1.4)
: ND filter (MINOLTA ND 50% FOR ADJUSTMENT)
: Battery adapter (2006-0415-75)
: Luminescence adjusting driver-B

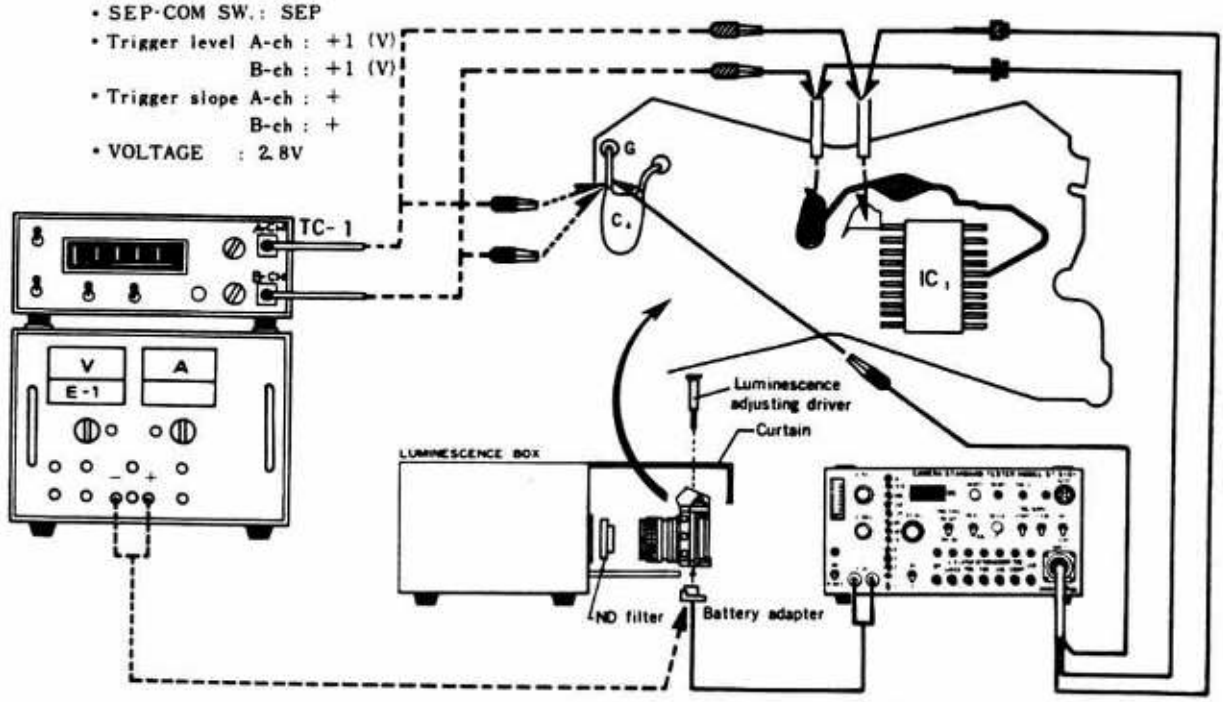
■ Standard value: 32~36ms

Luminescence—EV 10, ASA 100 (BV 5), ASA sensitivity—100 (SV 5)
F-number—F 5.6 (AV 5)

■ Adjustment procedure

1. Connect lead wires for measurement to terminal ⑩ (start signal) and ⑮ (stop signal) of IC_1 and then set it on the measuring instrument as illustrated below.

Ref. Digital time counter (TC-1) and constant voltage D.C power supply setting.



Body and measuring instrument setting

- Body
  - Shutter dial : AUTO
  - ASA dial : 100
  - EV correction scale : 0
  - Mode SW. : ON
- Standard lens
  - Distance ring : ∞
  - F-number : F 5.6
  - ND filter : Attached
- Camera standard tester
  - V-SEL. : 2.8V
  - TIME COUNT : ON
  - TRIG SLOPE START : +
    STOP : +
  - TRIG TYPE : ON→OFF
  - MEAS-CAL : MEAS.
  - SS-X change : SS
- Luminance box
  - Luminescence : EV 11 (ASA 100)

2. Make the adjustment by turning VR_2 so that counter indication is within the standard value (32~36 ms) when shutter is released.
   Turning VR_2 clockwise increases shutter speed.
3. Change Luminescence box to EV 15 (ASA 100), detach ND filter and release shutter. Then make sure that shutter speed ranges from 0.95~1.7 ms. (VR_4 should be shortcircuited).
   If shutter speed is out of the range, adjust VR_2 within the specification in 2.

4 Adjustment of VR_3 —Indication adjustment—

■ **Measuring instruments:**

: Camera standard tester (ST-5101) or Constant voltage D.C power supply (Model E-1 or E-2)
: Luminescence box (L-222 or L-223)
: Standard lens (50mm, F 1.4)
: Battery adapter (2006-0415-75)
• Luminescence adjusting driver-B

■ **Standard value:**

(1) Luminescence : EV 11 ASA 100 (BV 6)
ASA sensitivity: 100 (SV 5) } Indicates:
F-number : F 8 (AV 6)

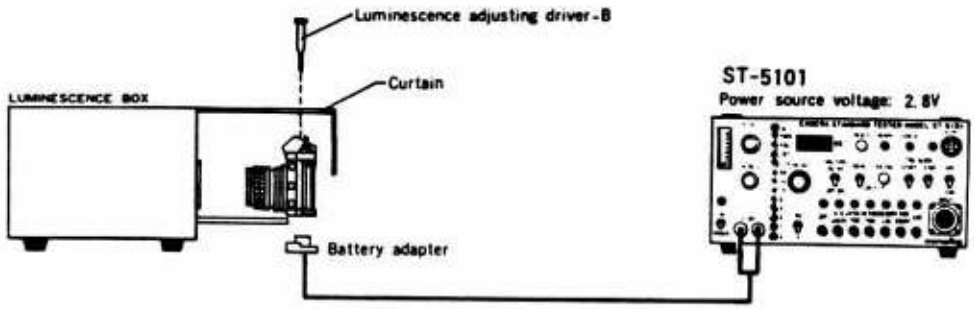
(2) Luminescence : EV 9 ASA 100 (BV 4)
ASA sensitivity: 100 (SV 5) } Indicates:
F-number : F 11 (AV 7)

(3) Luminescence : EV 14 ASA 100 (BV 9)
ASA sensitivity: 100 (SV 5) } Indicates:
F-number : 5.6 (AV 5)

-	-1	-0.5	0	+0.5	+1	EV
60	●	●	●	●	●	
30	●	●	☼	●	●	
15	●	●	●	●	●	
8	☼	☼	●	●	●	
4	●	☼	☼	☼	●	
2	●	●	●	☼	☼	
1000	☼	☼	●	●	●	
500	●	☼	☼	☼	●	
250	●	●	●	☼	☼	

■ **Adjustment procedure**

Arrange measuring instrument, set power source voltage to 2.8V, shutter dial (A) and metering switch (S_1) to ON as illustrated below.



1. When luminescece box = EV 11 (ASA 100) and standard lens = F 8: ∞, LED for standard value (1) should light up. Make the adjustment by VR_3. Turning VR_3 clockwise shifts the indication upwards.
2. When luminescence box = EV 9 (ASA 100) and standard lens = F 11; ∞, LED for standard value (2) should light up. If the indication is out of the specification, check the indication for EV 14 (ASA 100) and then make the adjustment by the following method or
3. When luminescence box = EV 14 (ASA 100) and standard lens = F 5.6: ∞, LED for standard value (3) should light up. If the indication is out of the specification, make the adjustment by the following method or

■ **Adjustment of slope**

If LED is deflected as shown in A, change resistor (R_8) to larger resistance.
If LED is deflected as shown in B, change resistor (R_8) to smaller resistance.

■ When R_8 is replaced, make the adjustment from the initial step.

	A		B
⋮			
250	☼	△	
125	☼	1000	☼
60	●	⋮	⋮
30	☼	30	☼
15	☼	2	☼
8	☼	1	☼
⋮		⋮	

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■ Manual sec. time adjustment

※ This adjustment should be done after Auto exposure adjustment.

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage D.C power supply (Model E-1 or E-2)

: Shutter tester (Model FS1D-MN4 or S-2101)

: Battery adapter (2006-0415-75)

■ Standard value:

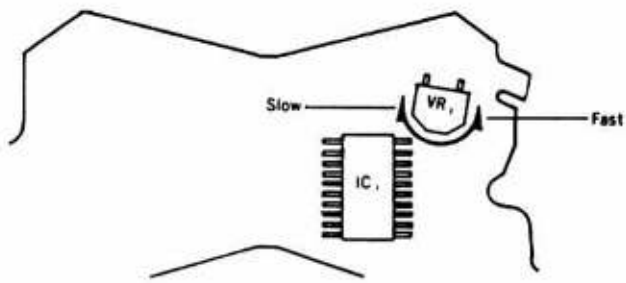
Shutter speed	Reference value	Allowable value
1/30	31.3 ms	30~33 ms
1/1000	0.98 ms	0.69~1.38 ms

NOTE: Allowable value stands for the center value of shutter tester. As for unevenness, refer to Inspection Specifification.

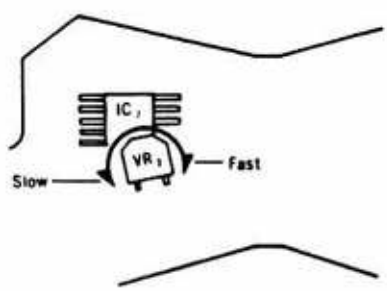
■ Adjustment procedure

1. Arrange the measuring instrument and set the power source voltage to 2.8V as illustrated below.

2. Release shutter with shutter dial set at 1/30 and make the adjustment by VR_1 so that the measured value is proximate to reference value (31.3 ms). Turning VR_1 clockwise decreases shutter speed.



3. Next, set shutter speed to 1/1000 and release shutter. Then make the adjustment by VR_4 so that the measured value is proximate to reference value (0.98 ms).
Turning VR_4 clockwise increases shutter speed.



4. Repeat the adjustments in (2) and (3).

• If manual sec. time is released or at high speeds, refer to the Trouble Shooting Chart. (Page. 16~17)

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■ AUTO exposure checking

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage D.C power supply (Model E-1 or E-2)
: Luminescence box (L-222 or L-223)
: EE tester (Model EE-2101 or EE-2111)
: Shutter tester (Model SD-2101)
: Standard lens (50 mm, F 1.4)
: Power source adapter

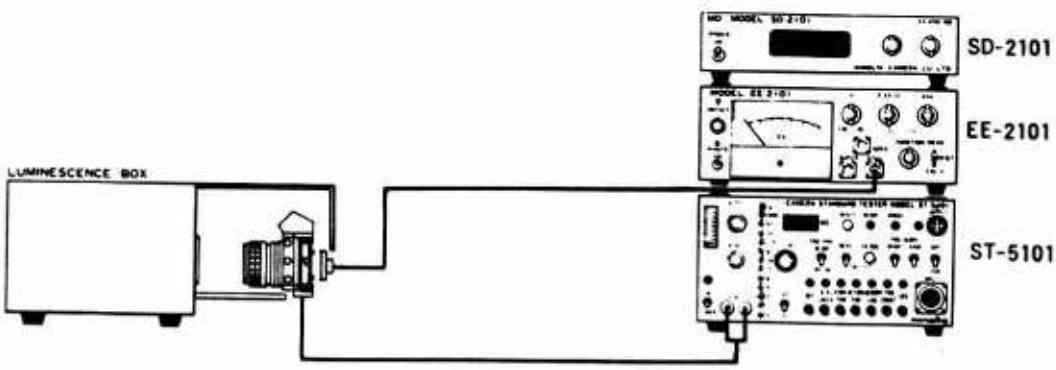
■ Standard value:

Measuring luminance (ASA 100)	SD-2101 Aperture switch	Shutter speed allowable range (ms)	EE level allowable range (EV)	EE level variation (EV)
EV15 EV14 EV 9	F 5.6	0.58~1.71 1.12~3.40 35.8~109	±0.8 EV	Within 0.6 EV

NOTE: When EE level measurement with luminescence EV 15 (ASA 100) causes over-range mark to light up, shutter is not released. At that time, it is normal if EE level requirement EV 14~EV 9 is satisfied.

■ Checking procedure

1. Arrange the measuring instrument as illustrated below.



Body and measuring instrument setting

- Body
  - Shutter dial : AUTO
  - ASA dial : 100
  - EV correcting scale : 0
  - Mode SW. : ON
- Camera standard tester
  - V-SEL : 2.8V
- Luminescence box
  - EV : 15, 14, 9
- EE tester
  - K value dial : 1.2
  - ASA dial : 100
- SD-2101
  - Luminescence change SW. : Same as luminescence box
  - Diaphragm change SW. : F 5.6

2. Release shutter and make sure that shutter speed and EE level are within the standardvalue.

• If shutter speed and EE level are out of the standardvalue, make the adjustment of AUTO exposure.

■ Indicating LED checking and adjustment

■ Measuring instruments:

: Camera standard tester (ST-5101)
: Battery adapter (2006-0415-75)

■ Checking procedure

1. Disconnect two leads (green, blue) of CdS board and connect the lead wires to measuring instrument, and then set the camera on the measuring instrument as illustrated.

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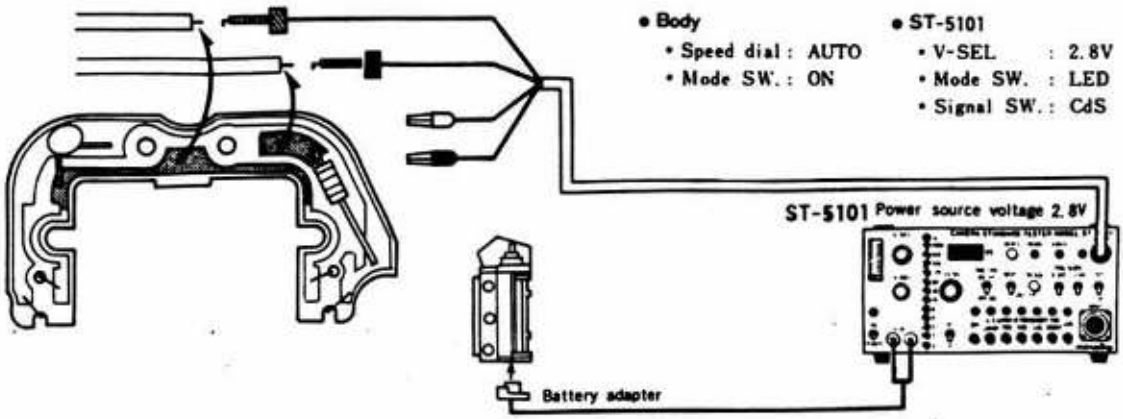
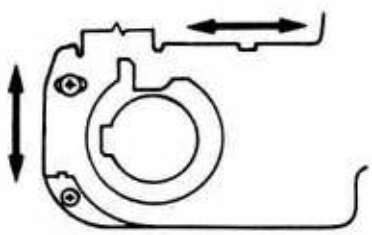


2. Set metering switch (S_1) to ON and turn ASA dial so that LED continuously lights up from ▽ (under-range warning) to △ (over-range warning).
3. Look into finder and make sure that indication is clear without vignetting of LED from ▽ to △.
4. If vignetting of LED exists in the view, make the adjustment according to the following procedure.

■ Adjustment procedure

1. With the above lead connections, loosen set-screws of LED board and shift it in the direction of arrow as illustrated. Tighten the set-screws when the indication is evenly clear and brightest from ▽ to △.

• When the adjustment is impossible, the position of on pentagon holder side is defective. Refer to the Assembly Chart. (Page. 19)



■ Touch switch operation checking

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage D.C power supply (Model E-1 or E-2)

: Battery adapter (2006-0415-75)

■ Standard value:

Indication is on with 10 MΩ, and off with 30 MΩ.

■ Checking procedure

1. Arrange measuring instrument as illustrated. Set shutter dial to (A) and power source voltage to 2.8V.

2. Touch the switch (not pressing) and make sure that indication lights up.

• If it doesn't light up, moisten the finger.

• If it still doesn't light up, push shutter button until metering switch (S_1) is activated. At that time, if indication lights up, touch switch and S_1 contact are defective and if it doesn't light up, refer to the Trouble Shooting Chart. (Page. 13)

■ Over-range lock checking

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage D.C power supply (Model E-1 or E-2)

: Luminescence box (L-222 or L-223)

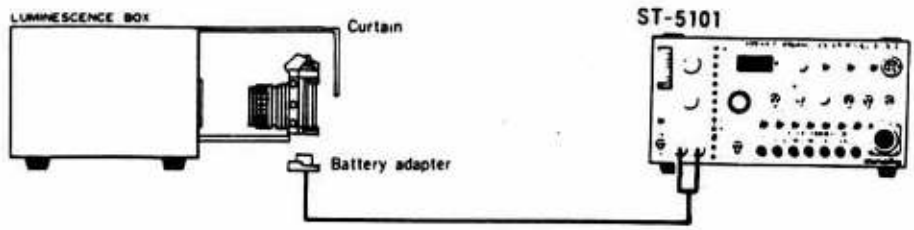
: Battery adapter (2006-0415-17)

■ Standard value:

1) Luminescence	: EV 15	(ASA 100)	(BV 10)	Releasing should be impossible with △ (over-range) lighted.
ASA sensitivity	: 250		(SV 6.25)	
F-number	: F 5.6		(AV 5)	
2) Luminescence	: EV 14	(ASA 100)	(BV 9)	Releasing should be possible with ▲ (over-range) off.
ASA sensitivity	: 125		(SV 5.25)	
F-number	: F 5.6		(AV 5)	

■ Checking procedure

1. Arrange the measuring instrument and set the power source voltage to 2.8V and shutter dial to (A).



2. When luminescence box = EV 15 (ASA 100), standard lens = F 5.6: ∞, and ASA sensitivity = 250, releasing should be impossible with △ (over-range) lighted.
3. When luminescece box = EV 14 (ASA 100), standard lens = F 5.6: ∞, and ASA sensitivity = 125, releasing should be possible with △ (over-range) off.

• If the above requirements are not satisfied, the adjustment of VR_3 (indication adjustment) is wrong. Refer to the adjustment of VR_3. (Page. 33)

■ Magnetic release minimum operation voltage and release lock voltage checking

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage D.C power supply (Model E-1 or E-2)

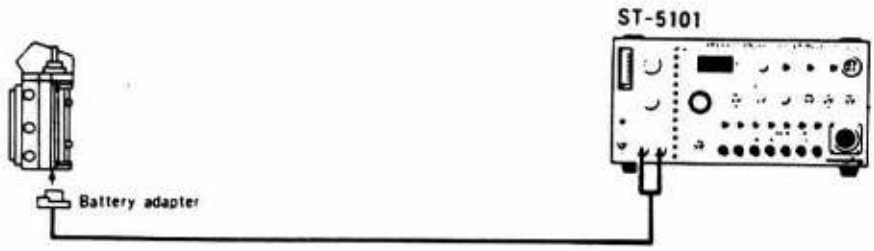
: Battery adapter

■ Standard value:

Shutter should not operate at 1.75V but at 2.15V.

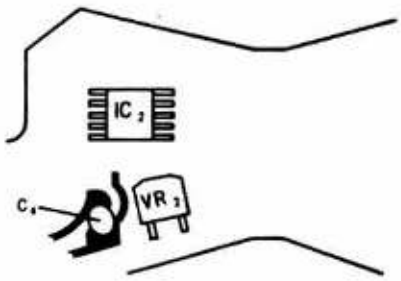
■ Checking procedure

1. Arrange the measuring instrument as illustrated below and set power source voltage to 1.75V. At that time, shutter should not become released.



2. With the connections kept as they are, set power source voltage to 2.15V, once set body mode swith to OFF and again to ON.
   Subsequent shutter releasing should be possible.

• When shutter releasing is impossible with power source voltage set at 2.15V, and C_4 (100 μF) as illustrated below and do checking as in 2.
   If shutter is not released with C_4 added, or if shutter releasing is possible at 1.75V, release magnet (Mg.2) or circuit board is defective, repair it with reference to Trouble Shooting Chart. (Page. 15)



■ B. C lamp lighting voltage checking

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage power supply (Model E-1 or E-2)

: Battery adapter (2006-0415-75)

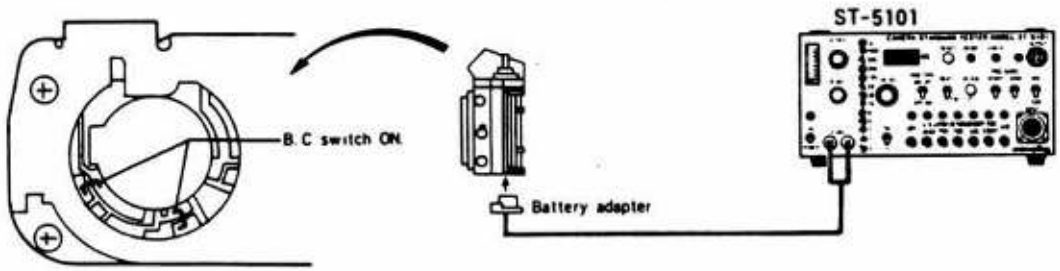
■ Standard value:

Lamp is offat 1.85V, and on at 2.15V (at 25°C room temperature)

■ Checking procedure

Arrange the measuring instrument as illustrated below. Set power source voltage to 1.85V, and B.C switch to ON (in the direction of arrow). Then make sure the lamp is off. Similarly, set power source voltage to 2.15V, then make sure B.C lamp is lighted.

• If B.C lamp doesn't turn on, refer to Trouble Shooting Chart. (Page. 11)



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■ Indicating LED minimum lighting voltage checking

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage power supply (Model E-1 or E-2)

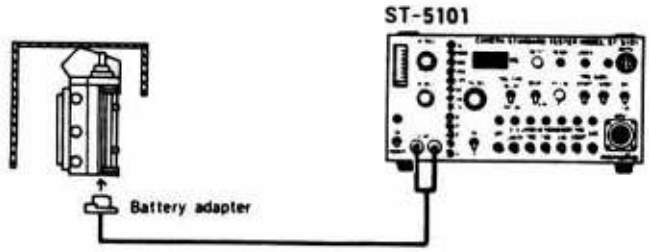
: Battery adapter (2006-0415-75)

■ Standard value:

LED should light up at 2.0V in darkness.

■ Checking procedure

Arrange the measuring instrument as illustrated below. Set power source voltage to 2.0V, shutter dial to (A), and release switch (S_1) to ON, with light shielded, indicating LED (V) should then light up.



■ Self-timer operation checking

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage D.C power supply (Model E-1 or E-2)

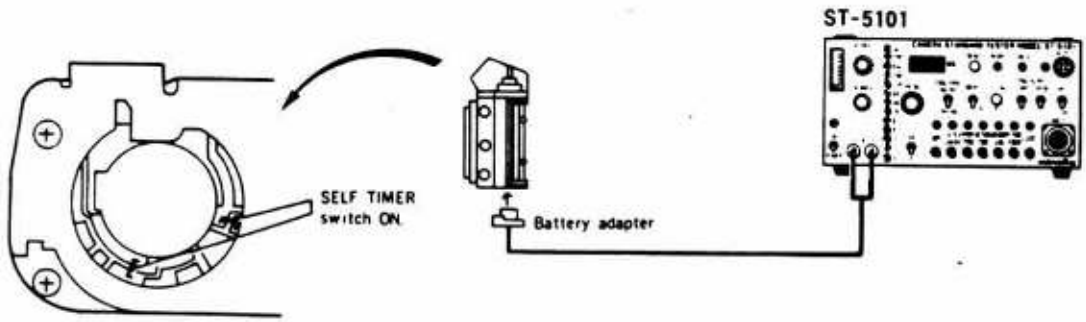
: Battery adapter (2006-0415-75)

■ Standard value:

After releasing shutter button, self-timer lamp should start blinking within 1 sec., and blinking cycle should change before releasing. Shutter should be released in 6~15 sec. after releasing shutter button.

■ Measuring procedure

Arrange the measuring instrument as illustrated below. Set power source voltage to 2.8V, mode switch to "SELF TIMER" and shutter dial to MANUAL (except B), the specification should be satisfied.



* If self-timer fails to operate, refer to Trouble Shooting Chart (Page. 18)
If self-timer operates but shutter is not released, refer to Trouble Shooting Chart (Page. 18)

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■ Minimum operation voltage checking

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage D.C power supply (Model E-1 or E-2)

: Shutter tester (Model FS1D-MN4 or S-2101)

: Battery adapter (2006-0415-75)

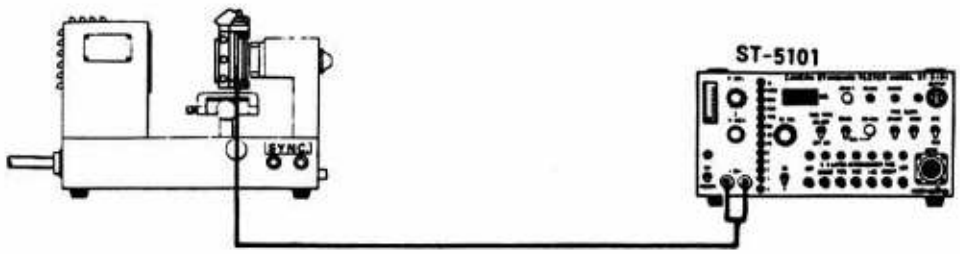
■ Standard value:

With voltage at 2.25V and 2.8V, shutter speed 1/1000 should be 0.69~1.38 ms.

(2.15V ——————————— 0.60~1.45 ms)

■ Checking procedure

Arrange the measuring instrument as illustrated below. Set shutter dial to (1/1000), and release the shutter at 2.8V and 2.25V respectively, thus measure the shutter speeds. At that time, make sure that shutter speeds are within the specification (0.69~1.38 ms).



• If the measured speeds are out of the standard value, re-adjust shutter speed or check shutter. (Refer to Page. 49)

■ Synchro time lag checking

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage power supply (Model E-1 or E-2)

: Shutter tester (Model FS1D-MN4 or S-2101)

: Battery adapter (2006-0415-75)

■ Standard value:

Shutter speed	1/60
Range A	0.3 ms or over
Range B	2 ms or over

■ Checking procedure

Arrange the measuring instrument as illustrated. Set shutter speed to 1/60, shutter tester to "FUNCTION", power source voltage to 2.8V.

Then release the shutter and make sure the measured value is within the standard value.

• When the measured value is out of the standard value, check and adjust the shutter. (Refer to Page. 51)

■ Strobe function checking

1 Checks before completion of charge

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage D.C power supply (Model E-1 or E-2)

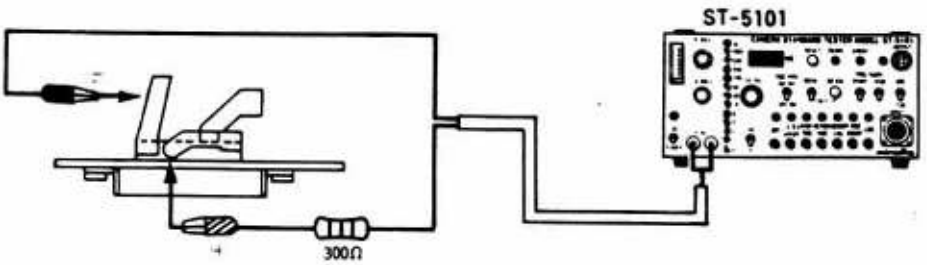
■ Standard value:

Voltage (V)	Indication in finder	Release shutter
0	AUTO speed	Operation at speed matched with AUTO speed.
1.6	Indication is off.	Shutter is released. 2nd curtain runs with power off.
2.0	"60" LED is on.	Shutter is released. 2nd curtain runs with power off.

■ Checking procedure

1. Arrange the measuring instrument as illustrated below. Set shutter dial to (A) and power source voltage to 0~2.0V, then check the measured value. (Battery is to be used for power supply to the camera.)

• If the operation is wrong, refer to Trouble Shooting Chart (Page. 19).



2 Checks on completion of charge

■ Measuring instruments:

: Camera standard tester (ST-5101) or Constant voltage D.C power supply (Model E-1 or E-2)
: Shutter tester (Model FS1D-MN4 or S-2101)
: Exclusive strobo (8668)
: Battery adapter (2006-0415-75)

■ Standard value:

"60" LED should blink on completion of strobo charge. Shutter speed should change to 20 ms (17~23 ms)

■ Checking procedure

1. Mount exclusive strobo (8668) on camera, set shutter speed to (A) and metering switch (S_1) to ON to charge the strobo.
   Auto speed should be indicated until completion of charge, and "60" LED should blink while the other indications are off on completion of charge (Ne tube is on).
2. Arrange the measuring instruments as illustrated right. Set shutter speed to 1/1000 and release shutter on completion of strobo charge, then make sure the measured value is within the specification (17~23 ms). (Light should be shut out to prevent shutter tester from the light of strobo.)

• If strobo doesn't operate properly, do the checks before completion of charge. If the results of above checks are satisfactory, the connector contact or strobo (8668) are defective. (Refer to the instructions for strobo.)

■ Body back (B. B) adjustment

■ **Measuring instruments:**

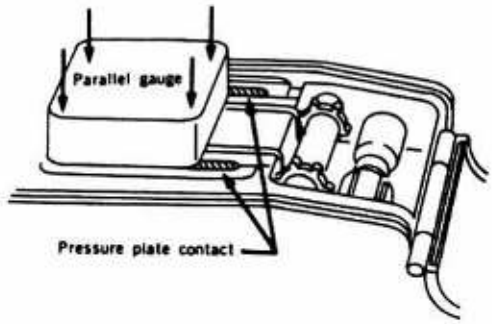
: Body back adjusting standard gauge (43. 70 mm)
: Parallel soureface flat plate (for 2005)
: Dial gauge
: Battery
: Temporary nuts (2006-3309-75)

■ **Standard valve**

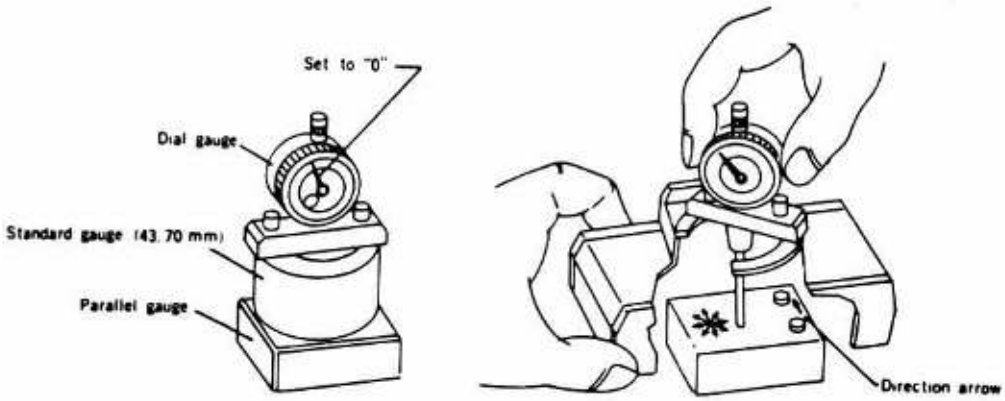
43. 70±0. 01 mm

■ **Adjustment procedure**

1. Adjustment of pressure plate contacts.
Place parallel sourface flat plate on body pressure plate contacts and lightly push the arrow-marked part with fingers to check for clearance.
Adjust the level by tapping the place using a fiber cushion.



2. Body back measurement
Set shutter dial to "B" and self-timer change contact holder to "ON" then release the shutter and put parallel gauge on pressure plate contact. Check zero position of dial gauge. using standard gauge. Slide the dial gauge up and down, right and left, and diagonally, then measure body back.



3. Body back adjustment
When measured value is lower than specification;
adjust it by 4 types of washer for adjustment.
Refer to the following table:

Type	2005-1061-81	2005-1062-81	2005-1063-81
Thickness (mm)	0. 02	0. 05	0. 1

When measured value is higher than specification;
replace with bayonet lens mount (2005-1010-81) and also make the adjustment with use of adjusting washers.

■ If body is greatly deviated, check for cracks in front plate and body.

■ Finder back adjustment

■ **Measuring instruments:**

: 1000 mm collimator (Medel RC-1000 Ⅰ, Ⅱ, Ⅲ)

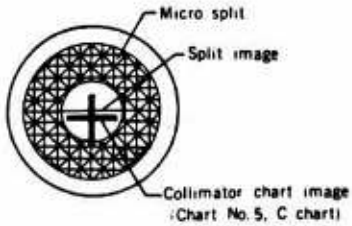
: Master lens for 054 finder-back adjustment (054-5202-79)

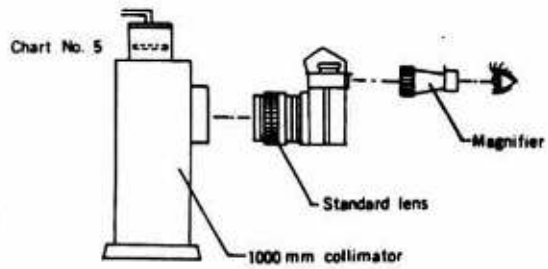
: Magnifier (8213-007)

■ **Standard value:** 43.56±0.025 mm

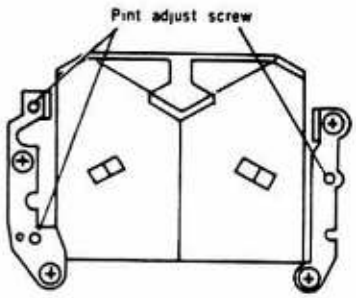
■ **Adjustment procedure**

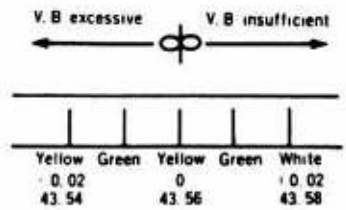
1. Place the body in such a position that chart image is visible as illustrated below. Set the magnigier visibility to the chart image.



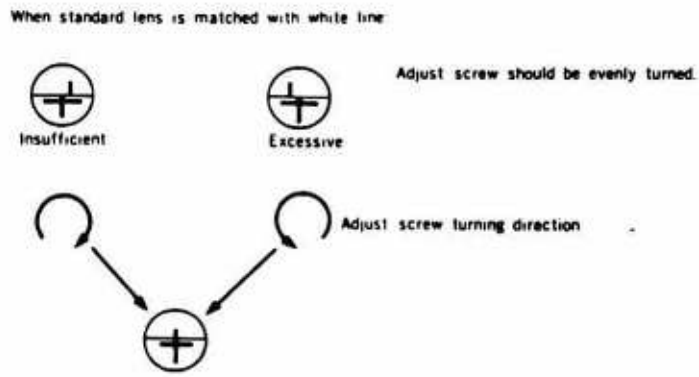


2. With white line of standard lens matched, evenly move pint adjust screw up and down, when vertical line of chart image has become matched, lock the screw.

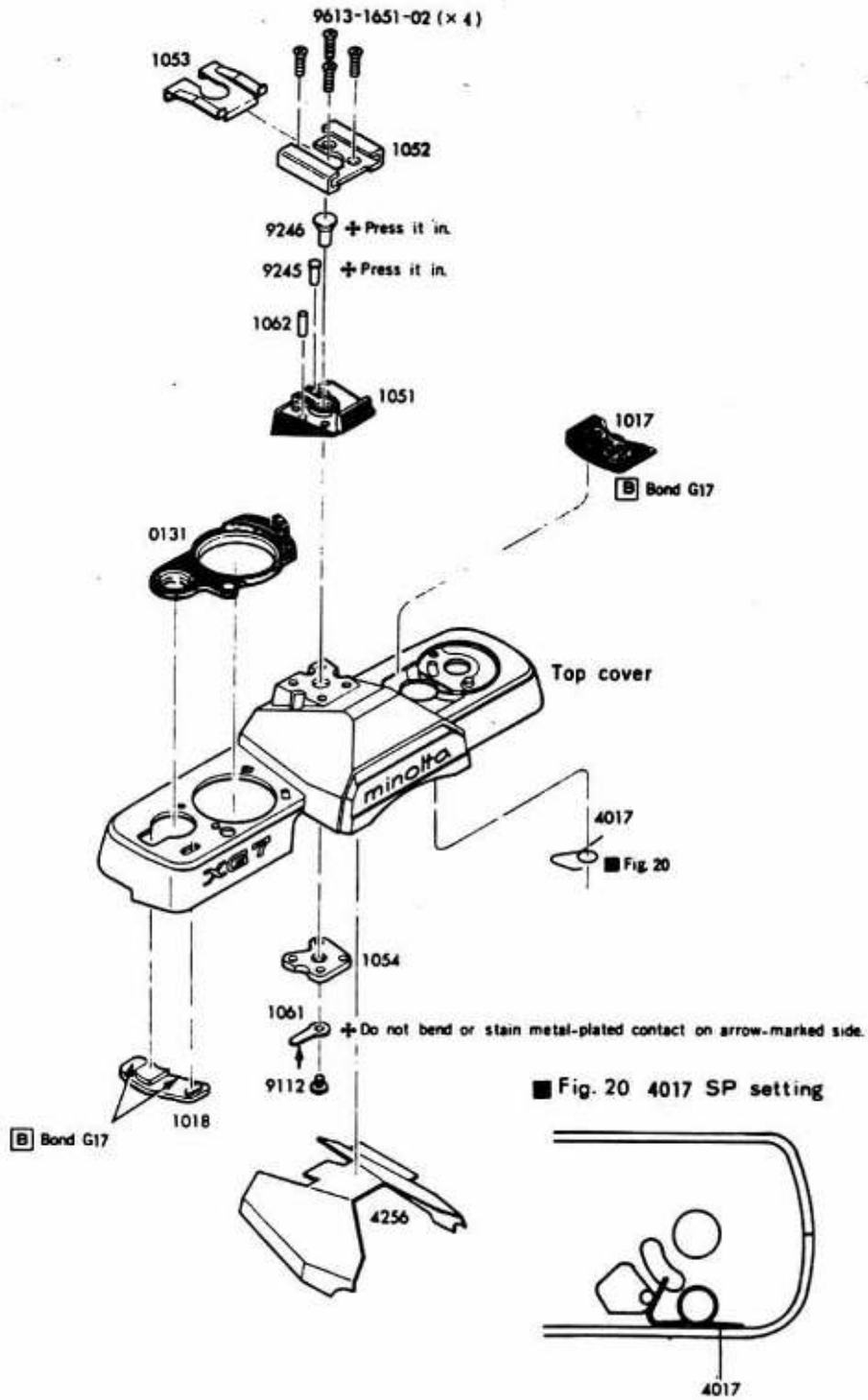




3. After adjustment, operate mirror several times, rotate helicoid of standard lens, and when vertical line of chart image has become matched, check that the value is within the standard value (43.56±0.025 mm) without one-side vignette.


When standard lens is matched with white line
Insufficient
Excessive
Adjust screw should be evenly turned.
Adjust screw turning direction

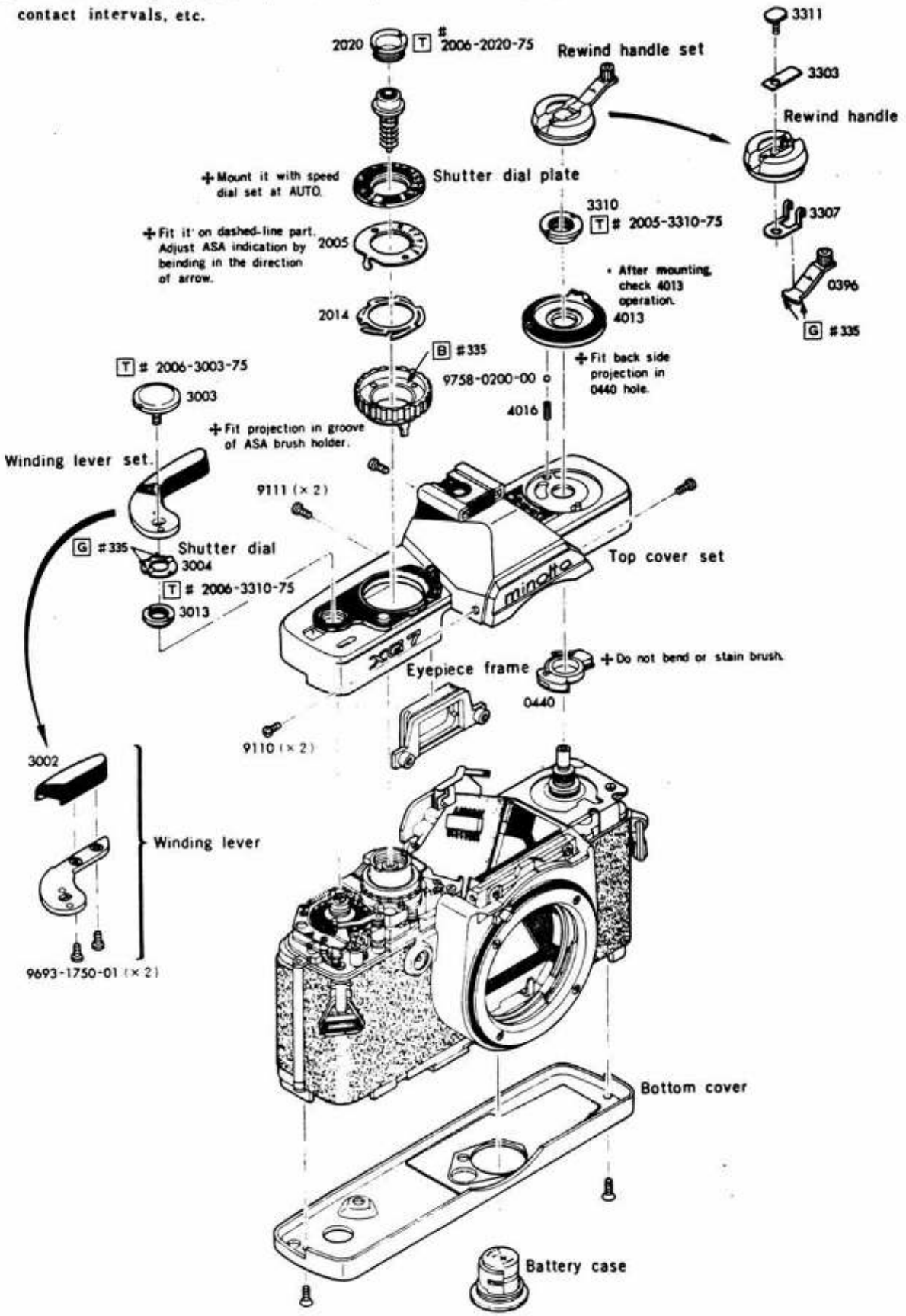
■ Top cover assembly



■ Fig. 20 4017 SP setting

15 Top cover Bottom cover Outer finish

■ Mount temporary top cover (2006-1003-75) before mounting top cover, hold lead wires and check contact intervals, etc.



■ Shutter performance checking

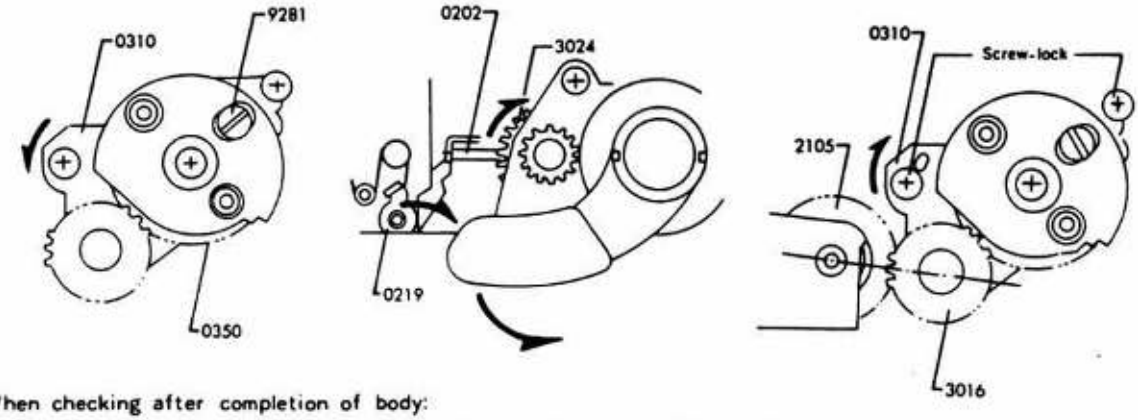
■ Checking items

1. Magnetic attraction and magnetic piece over-range volume.
2. Curtain speed.
3. Manual sec. time.
4. Minimum operation voltage.
5. Curtain bound.
6. Synchro time lag.

■ When checking before mounting body:

1. Shift winding bearing (0310) of body for shutter block adjustment (2006-0101-75) in the direction of arrow, and set eccentric screw (9281) of shutter charge gear D (0350) in the position as illustrated below.
2. Mount shutter block on front frame of adjusting body and shift front frame towards body winding side.
3. Shift winding bearing (0310) in the direction opposite to the arrow so that (−) of charge gear A (2105) is engaged with shutter charge gear C (3016) as illustrated below. Then tighten up set-screws.
4. When winding is slowly done to greatly move 2nd curtain stop lever (0219) in the direction of arrow. Make the adjustment so that sprocket idle gear (3034) is over-charged by 1 tooth from control base plate (0202) thus completing winding after shutter charge completion.

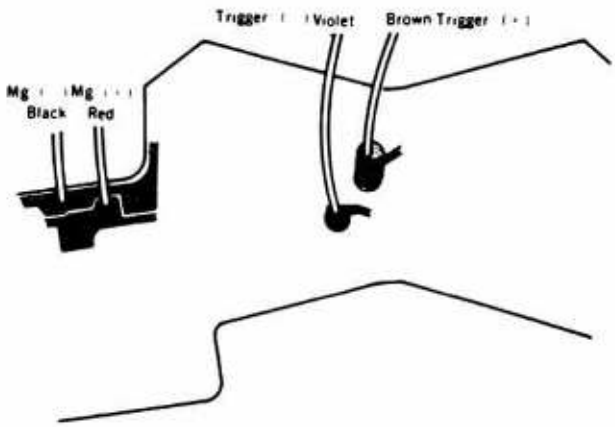
Carry out checking in the above order.



■ When checking after completion of body:

1. Remove top cover, and mount winding lever and shutter dial section.
2. Disconnect shutter control magnet + side (red), − side (brown), trigger switch + side (violet), − side (black) lead wires from flexible circuit board.
3. Load the batter box with battery (to operate release magnet).
4. Set shutter dial to other point than AUTO (to prevent release locking).

Carry out checking in the above order.



■ Precautions for measurement

If high speed operation or speed change occurs when the shutter connected to the measuring instrument is released, release the shutter with the MEAS-CAL switch set to either "CAL" or "MEAS".

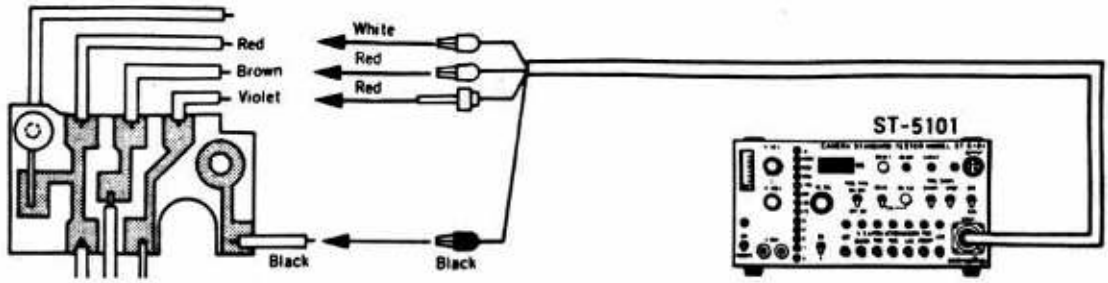
1 Magnetic attrction and magnetic piece over-range volume checking

■ Measuring instrument: Camera standard tester (ST-5101)

■ Standard value: No high speed operation at 1.5V.

1. Connect the measuring instrument and shutter as illustrated below. Make the setting of the tester as follows.
2. High speed operation should not result when shutter is released.

• If high speed operation results, refer to Shutter performance adjustment.



■ ST-5101
V-SEL: 1.5V MEAS-CAL: MEAS
SS-SEL: 1 sec Mode-SW.: SS CHECK
SS-X: SS
TRIG TYPE ON-OFF, OFF-ON: ON-OFF

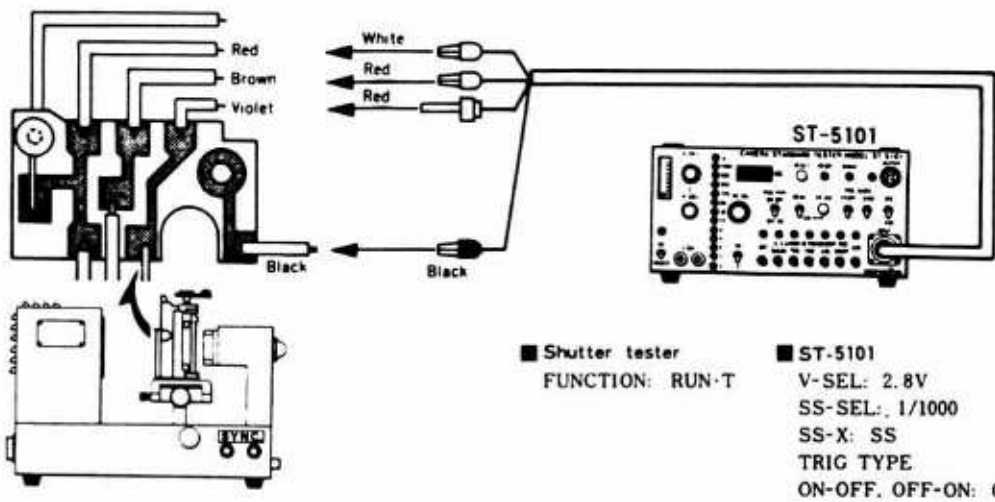
2 Curtain speed checking

■ Measuring instruments:
: Camera standard tester (ST-5101)
: Shutter tester (Model FS1D-MN4 or S-2101)

■ Standard valve: 11.0±0.2 ms (standard value) and 13 ms or less (allowable value) for both 1 st and 2 nd curtains.

1. Connect the measuring instrument and shutter block as illustrated below. Make the setting of the tester as follows.
2. When shutter is released, both curtain speeds should be same within the specification.

• If the speeds are out of specification, refer to Shutter performance.



■ Shutter tester
FUNCTION: RUN·T

■ ST-5101
V-SEL: 2.8V
SS-SEL: 1/1000
SS-X: SS
TRIG TYPE
ON-OFF, OFF-ON: ON-OFF
MEAS-CAL: MEAS
Mode-SW.: SS CHECK

3 Manual sec. time checking

■ Measuring instruments:

: Camera standard tester (ST-5101)

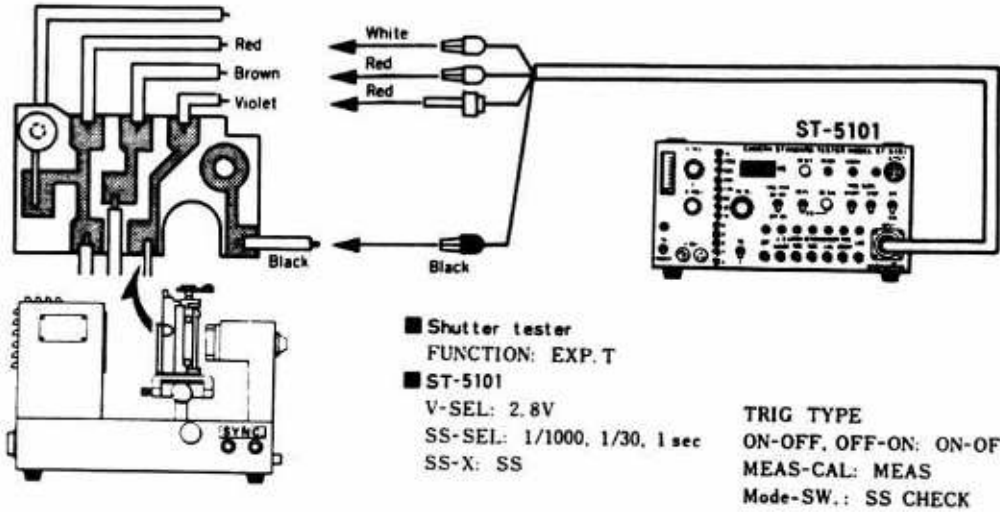
: Shutter tester (Model FS1D-MN4 or S-2101)

■ Standard value:

Shutter speed	Standard	Allowable	
1/1000	0.98 ms	0.7~1.34 ms	±0.45 EV
1/30	31.3 ms	26.3~37.2 ms	±0.25 EV
1/1	1000 ms	841~1190 ms	

1. Connect the measuring instrument and shutter block as illustrated below. Make the setting of the tester as follows.
2. When shutter is released at each speed with SS-SEL switch of camera standard tester set 1/1000, 1/30 and 1/1, the indication of shutter tester should be within the specification.

• If the results are out of the specification, refer to Shutter performance adjustment.



■ Shutter tester
FUNCTION: EXP. T

■ ST-5101
V-SEL: 2.8V
SS-SEL: 1/1000, 1/30, 1 sec
SS-X: SS

TRIG TYPE
ON-OFF, OFF-ON: ON-OFF
MEAS-CAL: MEAS
Mode-SW.: SS CHECK

4 Minimum operation voltage checking

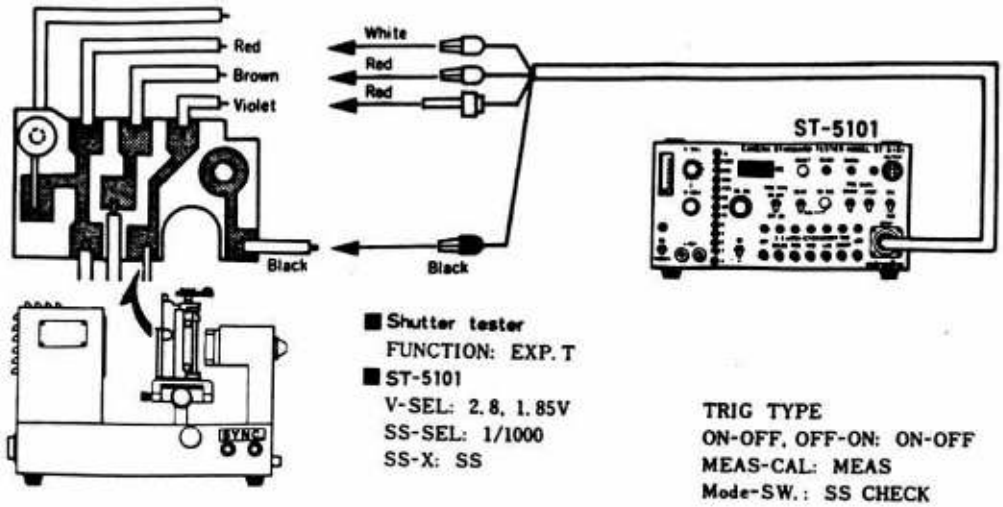
■ Measuring instruments:

: Camera standard tester (ST-5101)

■ Standard value: Difference in shutter speed between power source voltages 2.8V and 1.85V should be within 0.4 ms.

1. Connect the measuring instrument and shutter block as illustrated right. Make setting of the tester as follows.
2. Set V-SEL switch of camera standard tester to 2.8V, release the shutter and read the indication of shutter tester.
3. Next, set the V-SEL switch to 1.85V, release the shutter. Then, difference between the indication and the reading in 2 should be within 0.4 ms.

• If the results are out of the specification, refer to shutter performance adjustment.



■ Shutter tester
FUNCTION: EXP. T
■ ST-5101
V-SEL: 2.8, 1.85V
SS-SEL: 1/1000
SS-X: SS

TRIG TYPE
ON-OFF, OFF-ON: ON-OFF
MEAS-CAL: MEAS
Mode-SW.: SS CHECK

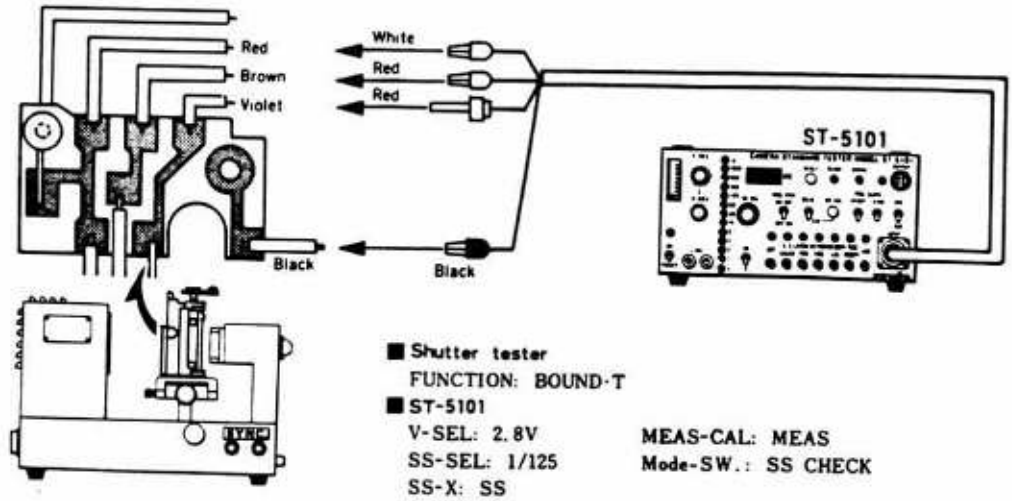
5 Curtain bound checking

■ Measuring instruments:
: Camera standard tester (ST-5101)
: Shutter tester (Model FS1D-MN4 or S-2101)

■ Standard value: No bound in the view.

1. Connect the measuring instrument and shutter block as illustrated below. Make the setting of tester as follows.
2. When shutter is released, no bound should be observed.

• If any bound is observed, refer to shutter performance adjustment.



■ Shutter tester
FUNCTION: BOUND·T
■ ST-5101
V-SEL: 2.8V
SS-SEL: 1/125
SS-X: SS
TRIG TYPE
ON-OFF, OFF-ON: ON-OFF
MEAS-CAL: MEAS
Mode-SW.: SS CHECK

⑥ Synchro time lag checking

■ Measuring instruments:

: Camera standard tester (ST-5101)

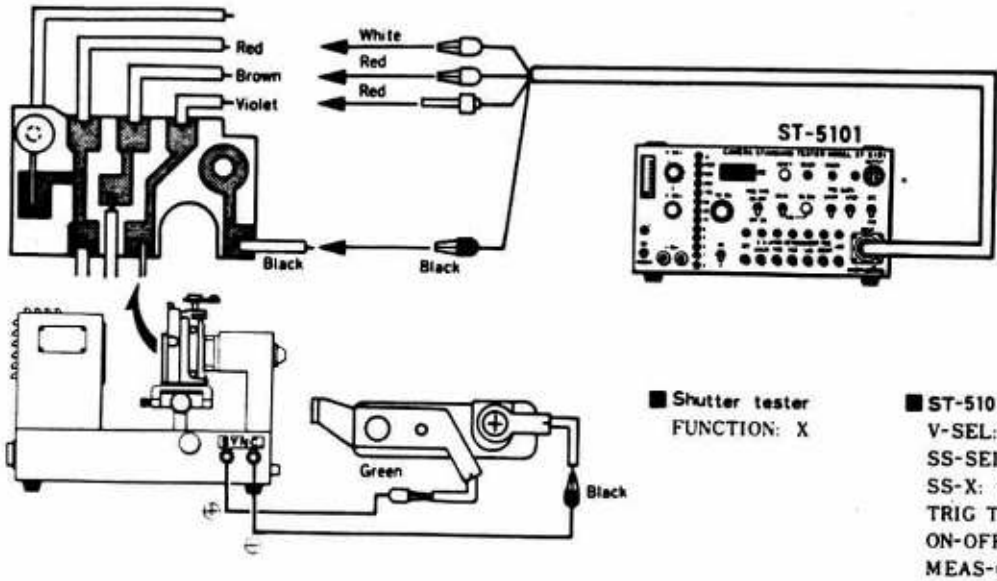
: Shutter tester (Model FS1D-MN4 or S-2101)

■ Standard value:

Shutter speed	Allowable time lag	
1/60	Range A	0.3 ms or over
	Range B	2.0 ms or over

1. Connect the measuring instrument and shutter block as illustrated below. Make thesetting of tester as follows. When checking complete body shutter block, connect synchro terminal ans shutter tester.
2. When shutter is released, indications in ranges A and B should be within the specification.

* If the results are out of the specification, refer to Shutter performance adjustment.



■ Shutter tester
FUNCTION: X

■ ST-5101
V-SEL: 2.8V
SS-SEL: 1/60
SS-X: SS
TRIG TYPE
ON-OFF, OFF-ON: ON-OFF
MEAS-CAL: MEAS
Mode-SW: SS CHECK

Trouble Shooting Chart

1. Hints on use of Trouble Shooting Chart

1. This chart includes the symptoms and causes of troubles on the camera side.
2. Even when a symptom appears on the camera side, the trouble is not always on the camera side but in connection with the replacement lens, winder or exclusive strobo. Therefore, carefully check operations related to the auxiliary parts before using this chart.

2. Contents of Chart

1. Mentioned in this chart are only individual patterns and these cannot cover all possible causes.
   Regarding multiple causes, carry out an all-round investigation of the trouble.
2. The chart mainly covers electrical causes and to a certain extent mechanical causes.

3. Precautions for Work

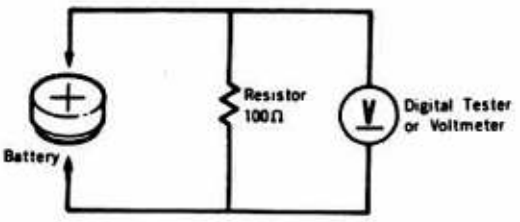
1. A digital tester (2507) is to be used as the measuring instrument. It is also allowable to use other measuring instruments when the input impedance exceeds 10 MΩ.
2. Use the measuring instrument to check voltages, and a tester of less than 3V to check current conduction.
3. It can be safely said that troubles of electric parts such as IC's diodes, transistors, resistors, capacitors, etc. seldom occur. It is therefore practical to put emphasis on checking for defective soldering of lead wires and electric parts, defective switches, etc.
4. When checking for defective soldering, do not excessively press the parts or pull the lead wires.
5. When measuring voltage, attach a pin to the end of alligator clip because the portion measured is very narrow. Do not directly connect the alligator clip with the portion measured; otherwise damge to the electric parts or to the pattern may occur.
6. When measuring the switch operation pattern, take care not to scratch the pattern outside the switch operation range. In case of a switch contact, take care not to disturb the switch contact.
7. When removing electric parts, pull out the power supply cord.
8. The desirable soldering iron temperature is about 260～300°C. In any case, finish soldering in a few seconds. Be sure to remove chips before soldering.

4. How to use the Trouble Shooting Chart

1. The chart includes check points in detail ranging from the appearance of symptoms to the finding of causes.
2. The flexible circuit board should be normal.
3. The voltage at each check point is to be the normal voltage when SW.1 and SW.7 are set to ON with winding completed (before releasing), 3.0V power supply (constant voltage), and 1/30 AUTO.
4. The earth is not connected to the body, check the earth on the flexible circuit board.
5. The indications in the Trouble Shooting Chart are Symptom, (Symptom to be checked), Check point, Normal voltage at check point, Defective voltage, Possible cause, Probable cause, and the marks in circles stand for check points in the flexible circuit board and circuit diagram.

5. Battery capacity checking method

1. Connect the 100Ω resistor to the battery as illustrated. Also, connect a digital tester or voltmeter in parallel with the resistor and then measure the voltage. The measurement should be done in a short time to avoid excessive consumption of battery power.
2. The battery is normal if the measured voltage is over 1.4V.



6. List of troubles due to defective IC contacts

	Auto				Manual			Bulb	B. C
	Indication	Release	Shutter speed	Self timer	Release	Shutter speed	Self timer		
IC-1 1	⚠ at all time (Occasionally-normal)	No		Not start	Yes	Unstable	Normal	Yes	Normal
2	⚠ at all time	No		Not start	Yes	Curtain runs without slit	Normal	Yes	Normal
3	⚠ at all time	No		Not start	Yes	Curtain runs without slit	Normal	Yes	Normal
4	No lighted	Yes	Kept open	Normal	Yes	Kept open	Normal	Yes	Normal
5	Normal	Yes	Curtain runs without slit	Normal	Yes	Curtain runs without slit	Normal	Yes	Normal
6	Low on the whole	Yes	Faster shutter speed than indication	Normal	Yes	Normal	Normal	Yes	Normal
7	⚠ at all time	No		Not start	Yes	Normal	Normal	Yes	Normal
8	Normal (※1)	Yes	Normal (※2)	Normal	Yer	Normal (※2)	Normal	Yes	Normal
9	Normal	No		Not start	No		Not start	No	Normal
10	Normal	Yes	Short or curtain runs without slit	Normal	Yes	Short or curtain runs without slit	Normal	Yes	Normal
11	Normal	Yes	Curtain runs without slit	Normal	Yes	Curtain runs without slit	Normal	Yes	Normal
12	Normal	Yes	Long sec. at all time	Normal	Yes	Long sec. at all time	Normal	Yes	Normal
13	Normal (※1)	Yes	Normal	Normal	Yes	Normal	Normal	Yes	Normal
14	⚠ at all time	No		Nat start	No		Not start	No	Normal
15	Normal	Yes	Curtain runs without slit	Normal	Yes	Curtain runs without slit	Normal	Curtain runs without slit	Normal
16	Normal	Yes	Curtain runs without slit	Normal	Yes	Curtain runs without slit	Normal	Curtain runs without slit	Normal
17	No lighted	Yes	Kept open	Normal	Yes	Kept open	Normal	Yes	Normal
18	No change	Yes	No chenge	Normal	Yes	No change	Normal	Yes	Normal
19	Run	Yes	Curtain runs without slit	Normal	Yes	Curtain runs without slit	Normal	Yes	Normal
20	No lighted	Yes	Kept open	Normal	Yes	Kept open	Normal	Yes	Normal

※1 : No indication with exclusive strobo.

※2 : Shutter speed doesn't change to 1/60 sec. with exclusive strobo.

		Auto				Manual			Bulb	B. C
		Indication	Release	Shutter speed	Self timer	Release	Shutter speed	Self timer		
IC-3	1	Normal	No		Not start	No		Not start	No	Normal
	2	Normal	Yes	Blub	Normal with shutter button pushed	Yes	Blub	Normal with shutter button pushed	Yes	Normal
	3	Normal	Yes	Normal	Normal (※3)	Yes	Normal	Normal (※3)	Yes	Normal
	4	Normal	Yes	Normal	LED not blinking	Yes	Normal	LED not blinking	Yes	Normal
	5	Normal	Yes	Normal	No tighted	Yes	Normal	No lighted	Yes	No lighted
	6	Normal	Yes	Normal	No delay time	Yes	Normal	No delay time	Yes	Normal
	7	Normal	Yes	Normal	No delay time even with "Q"	Yes	Normal	No delay time	Yes	Normal
	8	Normal	No		Only indication (about 10 sec.)	No		Only indication	No	Normal
	9	Normal	Yes	Normal	Normal	Yes	Normal	Normal	Yes	No lighted
	10	Normal	No		No indication (Available shutter release)	No		No indication (Available shutter release)	No	Normal
IC-4	1	No lighted	Yes	Kept open	Only blinking	Yes	Kept open	Normal	Yes	Normal
	2	No lighted	No		Not start	No		Not start	No	Normal
	3	No lighted	Yes	Kept open	Normal	Yes	Kept open	Normal	Yes	Normal
	4	Normal	No		Not start	No		Not start	No	Normal
	5	Normal	No		Not start	No		Not start	No	Normal
	6	Normal	No		Not start	No		Not start	No	Normal
	7	Normal	No		Only indication	No		Only indication	No	Normal
	8	Normal	No		Only indication	No		Only indication	No	Normal
	9	Normal	No		Only indication	No		Only indication	No	Normal
(※4)	10	Normal	Yes	Normal	Normal	Yes	Normal	Normal	Yes	Normal
	11	Normal	Yes	Curtain runs without slit	Normal	Yes	Curtain runs without slit	Normal	Curtain runs without slit	Normal
	12	No lighted	Yes	Kept open	Normal	Yes	Kept open	Normal	Yes	Normal

※3 : Blinking only when battery capacity is low.

※4 : Auto winder doesn't operate.

7. List of troubles due to electrical parts and switches

	Defective contacts	Shortcircuit troubles
C_1	Both AUTO and MANUAL ···released. (curtain is kept open)	Both AUTO and MANUAL···released. (curtain is kept open)
C_2	Both AUTO and MANUAL···high speed. (curtain doesn't open)	Both AUTO and MANUAL···released. (curtain is kept open)
C_3	Variation occurs due to shutter operation at high speeds.	Both AUTO and MANUAL···high speed. (curtain doesn't open)
C_4	Self-timer turns off without blinking.	Self-timer turns off without lighting.
C_5	Self-timer doesn't work.	Shutter lock and self-timer do not operate in auto and manual.
C_6	Magnetic release doesn't operate.	Magnetic release doesn't operate.
C_7	Metering circuit oscillates and indication unstable.	Both AUTO and MANUAL···released. (curtain is kept open)
C_8	Self-timer blinks but doesn't turn off. Long sec. time is elongated.	Shortcircuit occurs during metering indication, and battery is exhausted too quickly.
VR_1	MANUAL released. (curtain is kept open)	MANUAL···high speed. (curtain doesn't open)
VR_2	"⏚" lights up at all times in Auto. It cannot be adjusted.	Auto sec. time is long and cannot be adjusted.
VR_3	"⏚" lights up at all times in Auto.	Auto indication is set to low speed side, and sec. time is not affected.
VR_4	AUTO and MANUAL···high speed.	Sec. time is long at high speed.
R_1	EE linearity change great.	No low speed sec. time.
R_2	Auto released. (curtain is kept open)	Auto high speed sec. time tends to become long.
R_3	Both AUTO and MANUAL···released. (curtain is kept open)	Sec. time is long on the whole.
R_4	Due to 180mV deflection, manual linearity and ASA changeover defective.	Sec. time is short on the whole.
R_5	Shutter lock level unstable when battery capacity low.	Shutter lock level becomes high.
R_6	Self-timer doesn't turn off while lighted.	Self-timer doesn't work.
R_7	BC, self-timer not lighted.	LD 13 is too bright.
R_8	Over-range indication deflected upwards and under-range indication downwards.	Over-range indication deflected downwards and under-range indication upwards.
R_9	Indicating LED doesn't light up.	Indicating LED is too bright.
R_{10}	BC, lighting voltage and shutter lock level sometimes inversed.	Shortcircuit lamp doesn't light up at BC.
TR	Even when "⏚" is lighted, shutter is operated as release button is released.	Magnetic release doesn't operate. Self-timer doesn't operate.

	Operation	Kept at ON	Kept at OFF
S_1	Metering SW.	Indication stays lighted.	Indication doesn't light up.
S_2	Release SW.	Shutter is operated with winding lever shifted back.	Self, magnetic release do not operate.
S_3	Trigger SW.	AUTO, MANUAL released.	AUTO & MANUAL···high speed (high SS, excessive variation)
S_4	Reset SW.	Magnetic release doesn't operate.	Magnetic release doesn't operate.
S_5	Bulb SW.	No Bulb (B).	AUTO & MANUAL···B at all times.
S_6	B.C SW.	BC lighted at all times.	B.C doesn't light up.
	Self SW.	Self is activated at all times.	Self doesn't work.
S_7	Main SW.		No operation at all.
S_8	AM SW.		AUTO released (at AUTO), MANUAL release (at MAN.)
S_9	TV SW.		MANUAL released.
S_9'	SV SW.		AUTO released.
S_{10}	AV SW.		Shutter lock at AUTO, high speed at MAN.
S_{11}	Touch SW.	Indication stays lighted. (ON with below 10 MΩ)	Indication doesn't light up. (OFF with over 30 MΩ)

8. Voltage at main check points of electric circuits

Power source voltage: 3 volts Camera condition: Auto

	Winding completed S_4 ON	During metering S_1 ON	During exposure S_2 ON	Exposure completed S_1, S_2 ON	Remarks
IC-1 1	F	2.95			Power source (+) of metering and calculating circuit.
2	F	0.75			Output of metering circuit
3	F	1.2	0.1	1.2	Related to IC-1 ②
4	F	2.8			Power source for memory, indication level.
5	F	1.25	0.1	1.25	Output to memory condenser
6	F	1.25	0.1	1.25	Output to indication circuit
7	F	1.25			To IC-2 ⑦
8	F				Input of strobo auto signal
9	F	0	0.1	0.7	Related to S_2
10	0		1.3	F	Related to S_3
11	F		3→2.2→0	F	Charging voltage of C_2
12	F	0.6	0.1	0.6	Memory voltage
※a 13	F	※0.8 (1.7)	F	※0.8 (1.7)	Related to blinking of LED "60"
14	0				Power source (−) of IC-1
15	3.0		0.1	3.0	Output to 2nd curtain control Mg.
16	F		2.95	F	Power source (+) of control circuit
17	F	2.8			Input of photo tube changer
※b 18	F	0.7 (0.55)			Power source (−) of calculating circuit
※c 19	F	0.9 (0.75)			Power source (+) of calculating circuit
※d 20	F	0.8 (0.65)			Related to TV information S_3

F→no voltage indication (indicated value is unstable.)
Parenthesized in ※a, b, c, d are voltages at manual 1/30.
※-marked in ※a are 0.2V with LED "60" lighted.
※e, f, g are as figures when self-timer is operated.

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	Winding completed S_4 ON	During metering S_1 ON	During exposure S_2 ON	Exposure completed S_1, S_2 ON	Remarks
IC-3 1	F		2.95	F	Power source (+) of released circuit.
2	3	2.95	0.2	0.7	Related to power source self-maintenance and to SS.
3	F		0.7	F	Related to release lock
※ e_4	F				Related to oscillator circuit for self-timer.
※ f_5	F		1.6		LED blinking signal output for BC, self-timer.
※ g_6	F		1.1	F	Switched to self-timer circuit, related to S_4.
7	F		2.3	F	Related to release delay, self-timer
8	3.0	2.95	0	2.95	Magnetic release output
9	0				B.C circuit output
10	0				Power source (−) of IC-3
IC-4 1	0				Power source (−) of IC-4
2	3.0				Power source (+) of IC-4
3	2.6	0			Input of S_1, S_{11}
4	3.0	2.95	0.2	0.7	Input of S_2
5	3.0			F	Release circuit input related to S_4
6	F		2.95	F	To IC-3 ①
7	3.0		0.7	3.0	Charging voltage of C_4
8	3.0	2.95	0	2.95	To IC-3 ⑧
9	0		3.0	0	Output to release M_R
10	2.0			F	To winder terminal related to S_4
11	F		2.95	F	To IC-1 ⑯
12	F	2.95			To IC-1 ①

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Trouble Items

A. Self-timer operation indicating LED (for B.C) does not light up. ····· P.11~12
(No operation at all)
(Neither BC nor self-timer light up.)
(Only self-timer does not light up.)
(Neither self-timer nor magnetic release operate.)
(Only self-timer does not operate. It turns off immediately.)

B. B.C lighting voltage is defective. ····· P.13

C. Self-timer operation indicating LED (for B.C.) is too bright. ····· P.13

D. Indicating LED does not light up. ····· P.13

E. ⚠ (over-range warning) is kept lighted. ····· P.14

F. Indicating LED flickers during operation of ASA dial. ····· P.14

G. Indicating LED flickers during operation of diaphragm ring. ····· P.14

H. Indication does not change even when diaphragm ring is operated. ····· P.14

I. Meter sensitivity is defective. ····· P.14

J. Indicating LED is too bright. ····· P.15

K. Indicating LED is dark or incomplete. ····· P.15

L. Indicating LED partially fails to light up. ····· P.15

M. Magnetic release does not operate. ····· P.15

N. Release can be done by release button even when ⚠ (over-range warning) is lighted. ····· P.15

O. Shutter speed is defective. ····· P.16~17

1. Auto, manual and bulb are all at high speeds. (curtain doesn't open)
2. AUTO and MANUAL·····high speed. (curtain doesn't open)
3. AUTO and MANUAL·····curtain is kept open.
4. AUTO and MANUAL·····short in sec. time.
5. AUTO and MANUAL·····long in high speed sec. time.
6. AUTO and MANUAL·····long in sec. time on the whole.
7. Only MANUAL·····high speed. (curtain doesn't open)
8. Only MANUAL·····curtain is kept open.
9. Only AUTO·····curtain is kept open.
10. No bulb.

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P. Self-timer does not operate at all. ····· P.18

1. Self-timer turns off too soon.
2. Self-timer works while self-timer operation indicating LED is on.
3. Self-timer works is off.
4. Shutter is not released while is blinking.
5. Self-timer is normal while shutter button is depressed.

Q. Strobo does not flash. ····· P.19

R. Indicating LED is not switched to "60" with the exclusive strobo ····· P.19

S. Speed is not switched to 1/60 with the exclusive strobo. ····· P.19

T. Curtain is kept open with the exclusive strobo mounted. ····· P.19

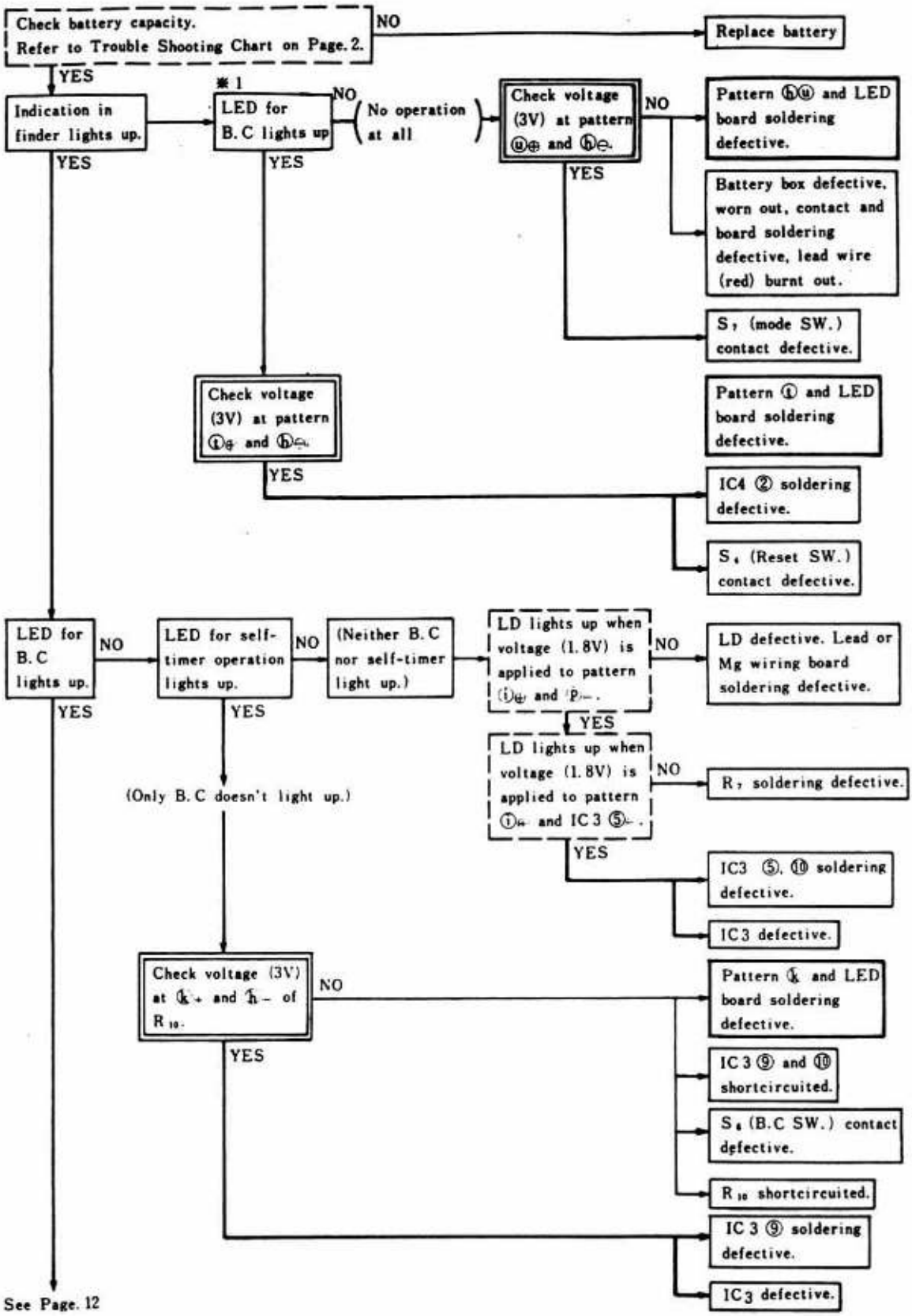
U. Curtain is kept open by remote control. ····· P.19

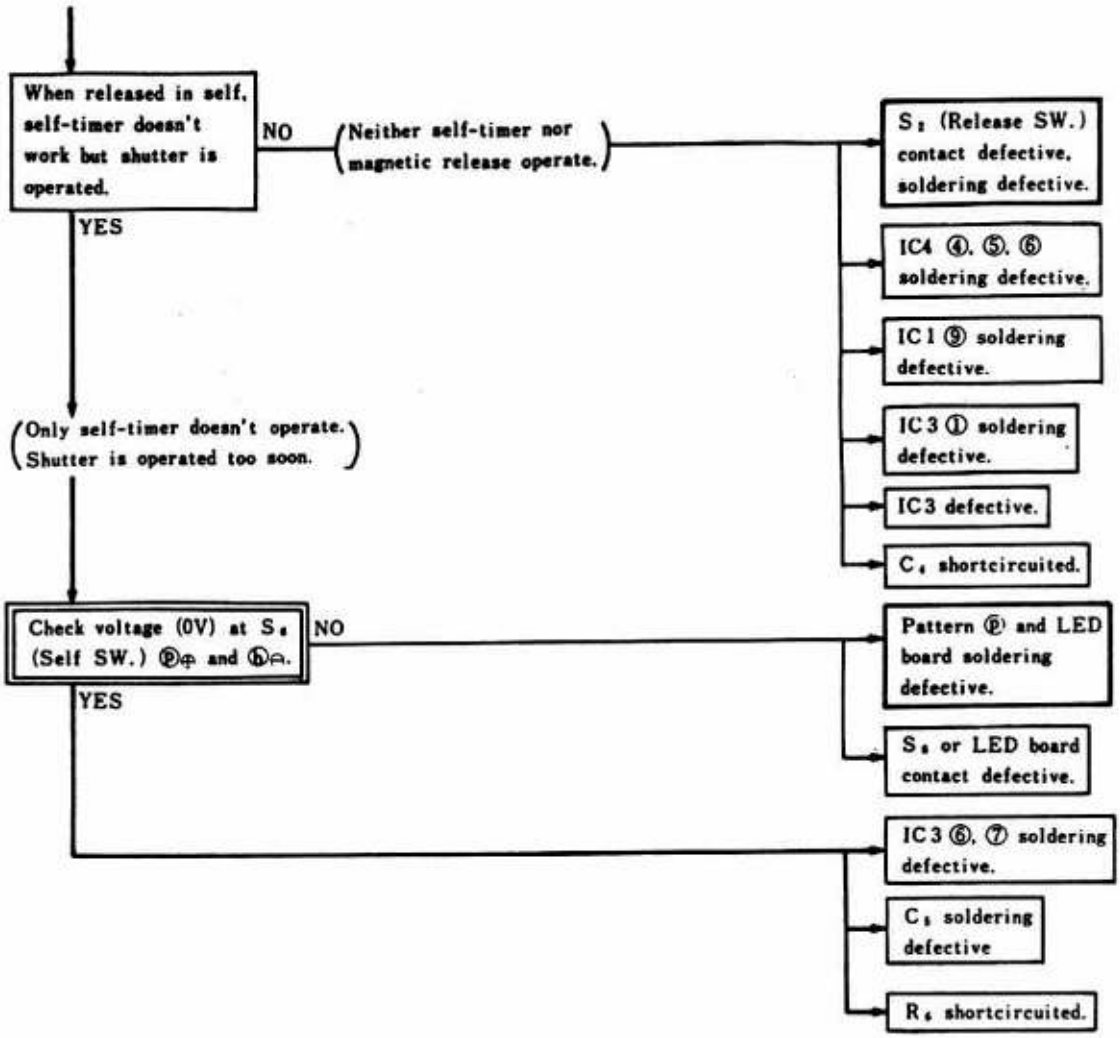
V. Winder does not operate. ····· P.19

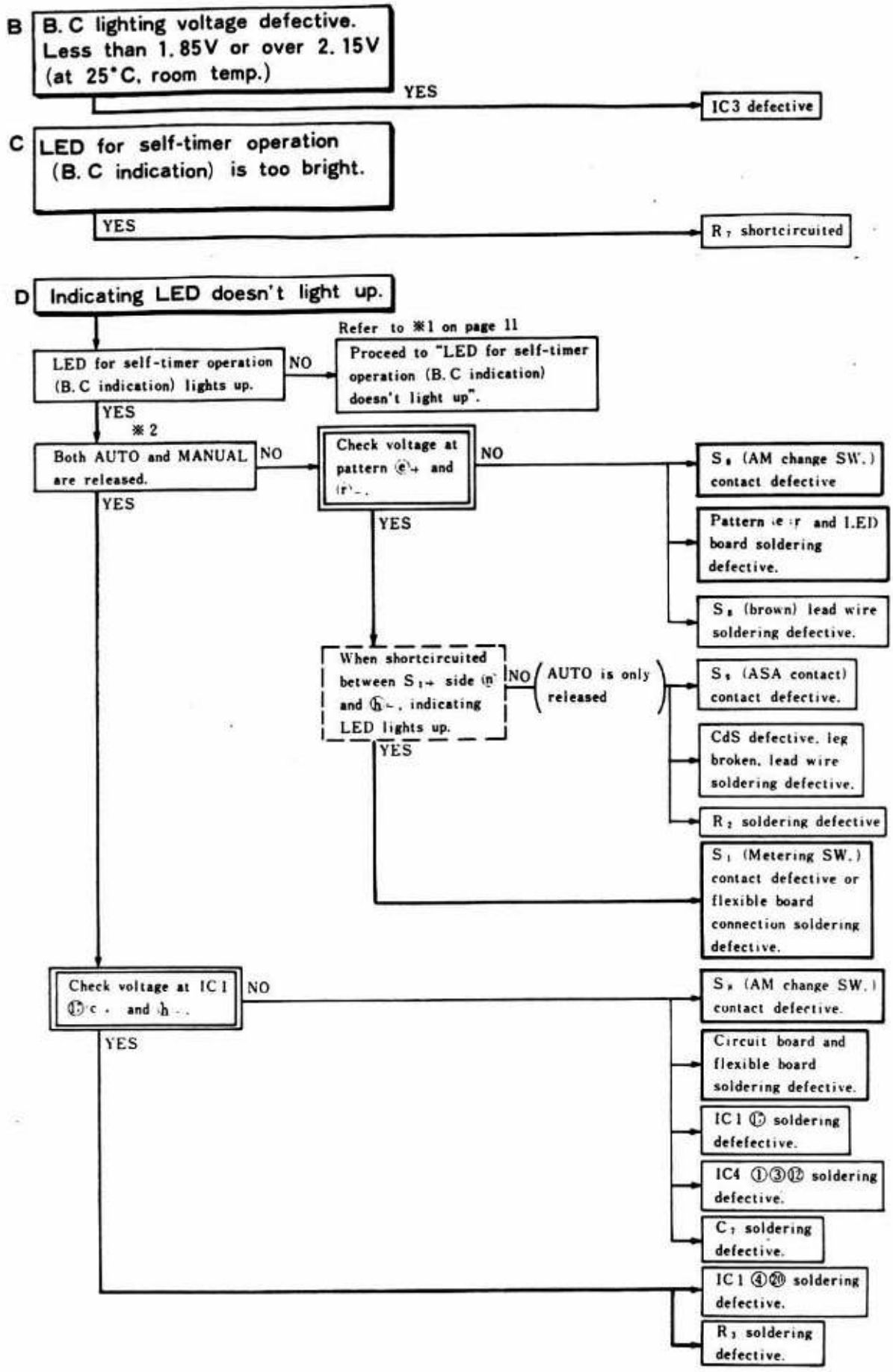
W. Battery is exhausted too early. ····· P.20

A LED for self-timer operation (for B.C indication) doesn't light up.

(One or both LED fail to light up.)
(To call LED for self-timer and B.C at the same time .....LD)


Check battery capacity. Refer to Trouble Shooting Chart on Page. 2.
NO
Replace battery
YES
Indication in finder lights up.
YES
✱1
LED for B.C lights up
NO
No operation at all
YES
Check voltage (3V) at pattern ⓖ⊕ and ⓗ⊖.
NO
Pattern ⓗⓖ and LED board soldering defective.
Battery box defective, worn out, contact and board soldering defective, lead wire (red) burnt out.
YES
S7 (mode SW.) contact defective.
Check voltage (3V) at pattern ①⊕ and ⓗ⊖.
Pattern ① and LED board soldering defective.
YES
IC4 ② soldering defective.
S4 (Reset SW.) contact defective.
LED for B.C lights up.
NO
LED for self-timer operation lights up.
NO
(Neither B.C nor self-timer light up.)
LD lights up when voltage (1.8V) is applied to pattern ⓙ⊕ and ⓟ⊖.
NO
LD defective. Lead or Mg wiring board soldering defective.
YES
YES
(Only B.C doesn't light up.)
LD lights up when voltage (1.8V) is applied to pattern ①⊕ and IC3 ⑤⊖.
NO
R7 soldering defective.
YES
IC3 ⑤, ⑩ soldering defective.
IC3 defective.
Check voltage (3V) at ⓚ+ and ⓗ− of R10.
NO
Pattern ⓚ and LED board soldering defective.
YES
IC3 ⑨ and ⑩ shortcircuited.
S6 (B.C SW.) contact defective.
R10 shortcircuited.
IC3 ⑨ soldering defective.
IC3 defective.
See Page. 12


When released in self, self-timer doesn't work but shutter is operated.
NO
Neither self-timer nor magnetic release operate.
S1 (Release SW.) contact defective, soldering defective.
IC4 ④, ⑤, ⑥ soldering defective.
IC1 ⑨ soldering defective.
IC3 ① soldering defective.
IC3 defective.
C4 shortcircuited.
YES
Only self-timer doesn't operate. Shutter is operated too soon.
Check voltage (0V) at S4 (Self SW.) ⑫ and ⑮.
NO
Pattern ⑫ and LED board soldering defective.
S4 or LED board contact defective.
YES
IC3 ⑥, ⑦ soldering defective.
C3 soldering defective
R4 shortcircuited.


B
B. C lighting voltage defective.
Less than 1. 85V or over 2. 15V
(at 25°C, room temp.)
YES
IC3 defective
C
LED for self-timer operation
(B. C indication) is too bright.
YES
R7 shortcircuited
D
Indicating LED doesn't light up.
LED for self-timer operation
(B. C indication) lights up.
NO
Refer to ※1 on page 11
Proceed to "LED for self-timer operation (B. C indication) doesn't light up".
YES
※2
Both AUTO and MANUAL are released.
NO
Check voltage at pattern ⓔ+ and ⓕ−.
NO
S8 (AM change SW.) contact defective
Pattern ⓔ ⓕ and LED board soldering defective.
S8 (brown) lead wire soldering defective.
YES
When shortcircuited between S1+ side ⓝ and ⓗ−, indicating LED lights up.
NO
AUTO is only released
S9 (ASA contact) contact defective.
CdS defective, leg broken, lead wire soldering defective.
R2 soldering defective
YES
S1 (Metering SW.) contact defective or flexible board connection soldering defective.
Check voltage at IC1 ⑮c and ⓗ−.
NO
S8 (AM change SW.) contact defective.
Circuit board and flexible board soldering defective.
IC1 ⑮ soldering defefective.
IC4 ①③⑫ soldering defective.
C7 soldering defective.
YES
IC1 ④⑳ soldering defective.
R3 soldering defective.

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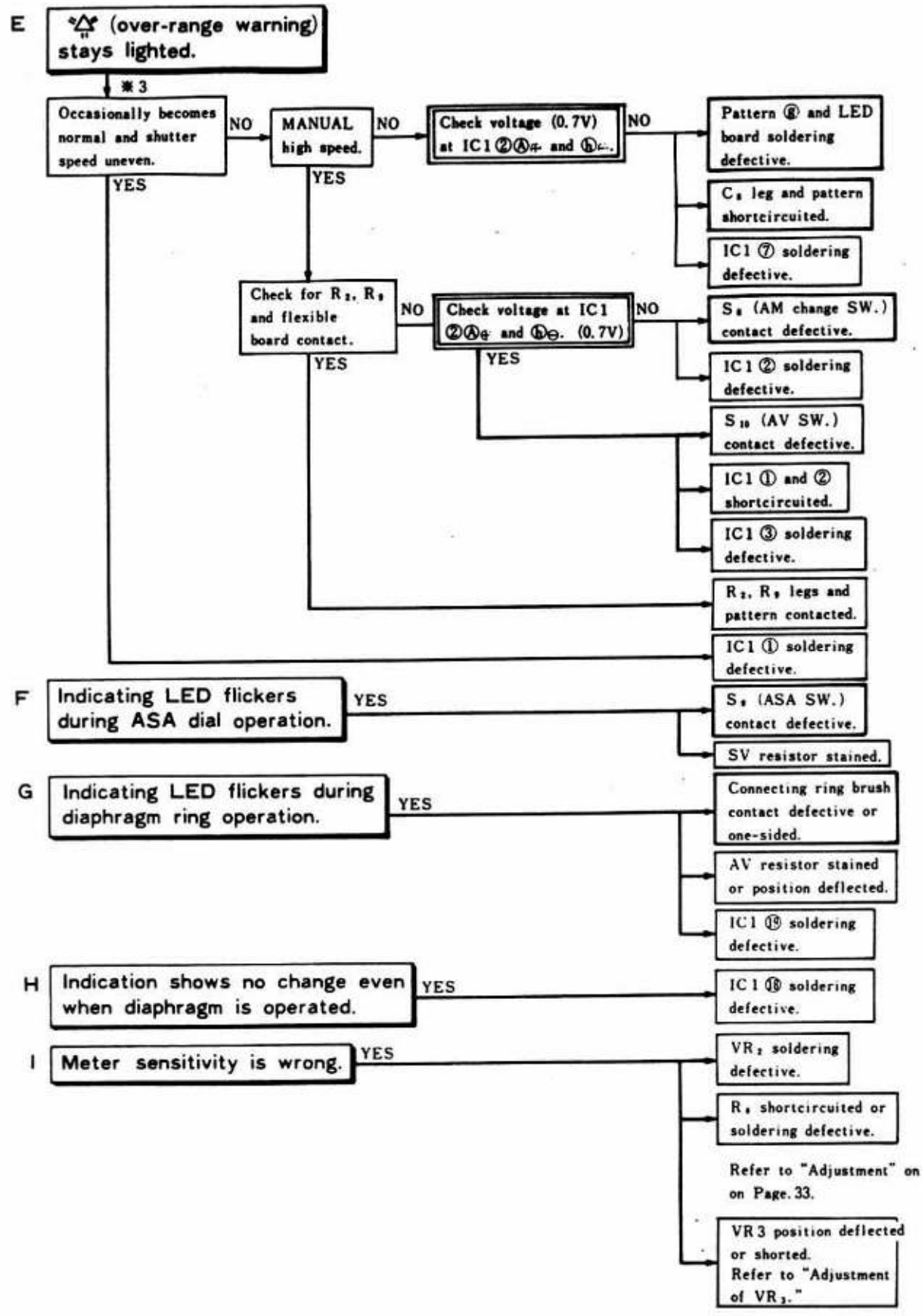
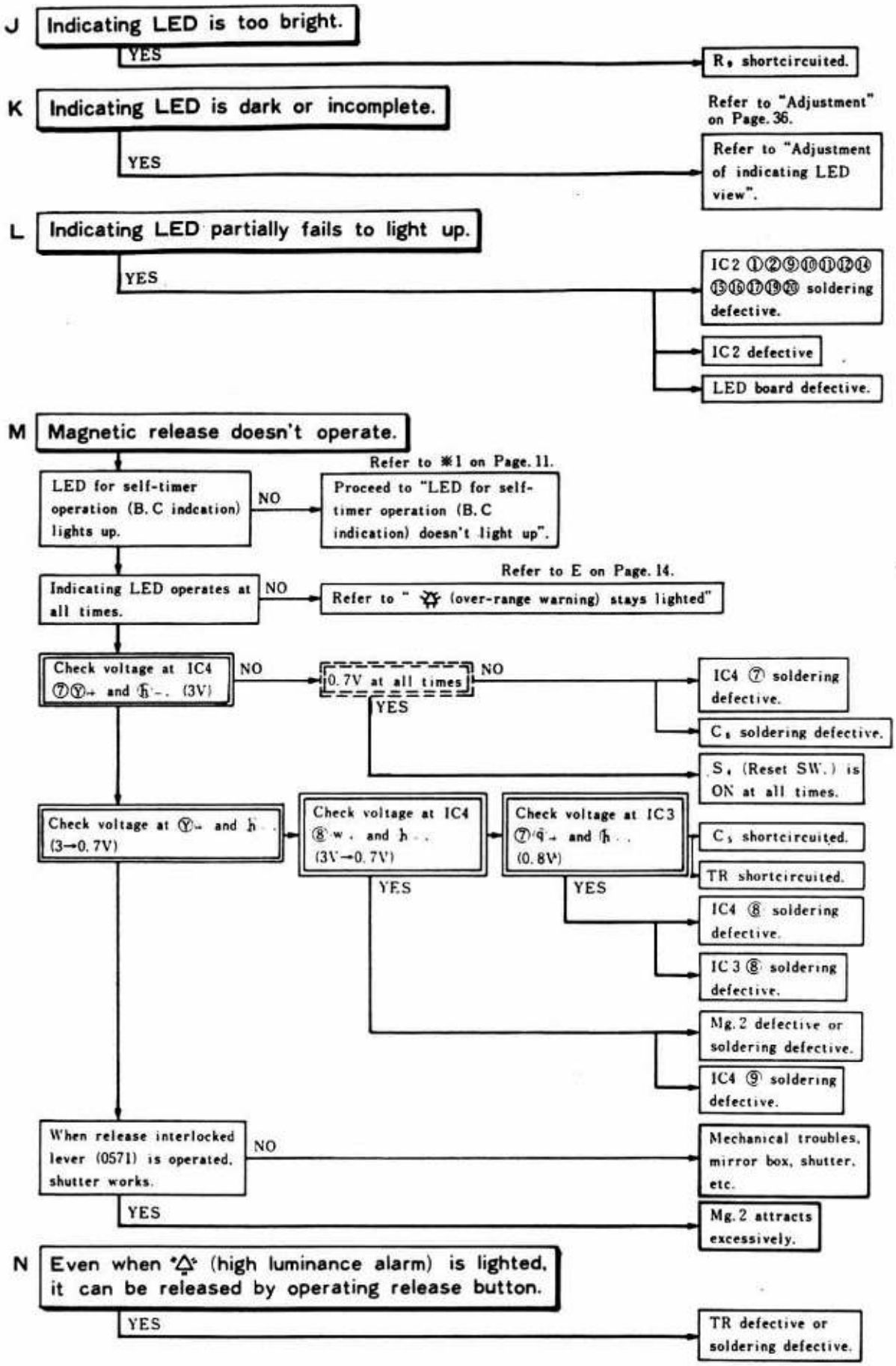
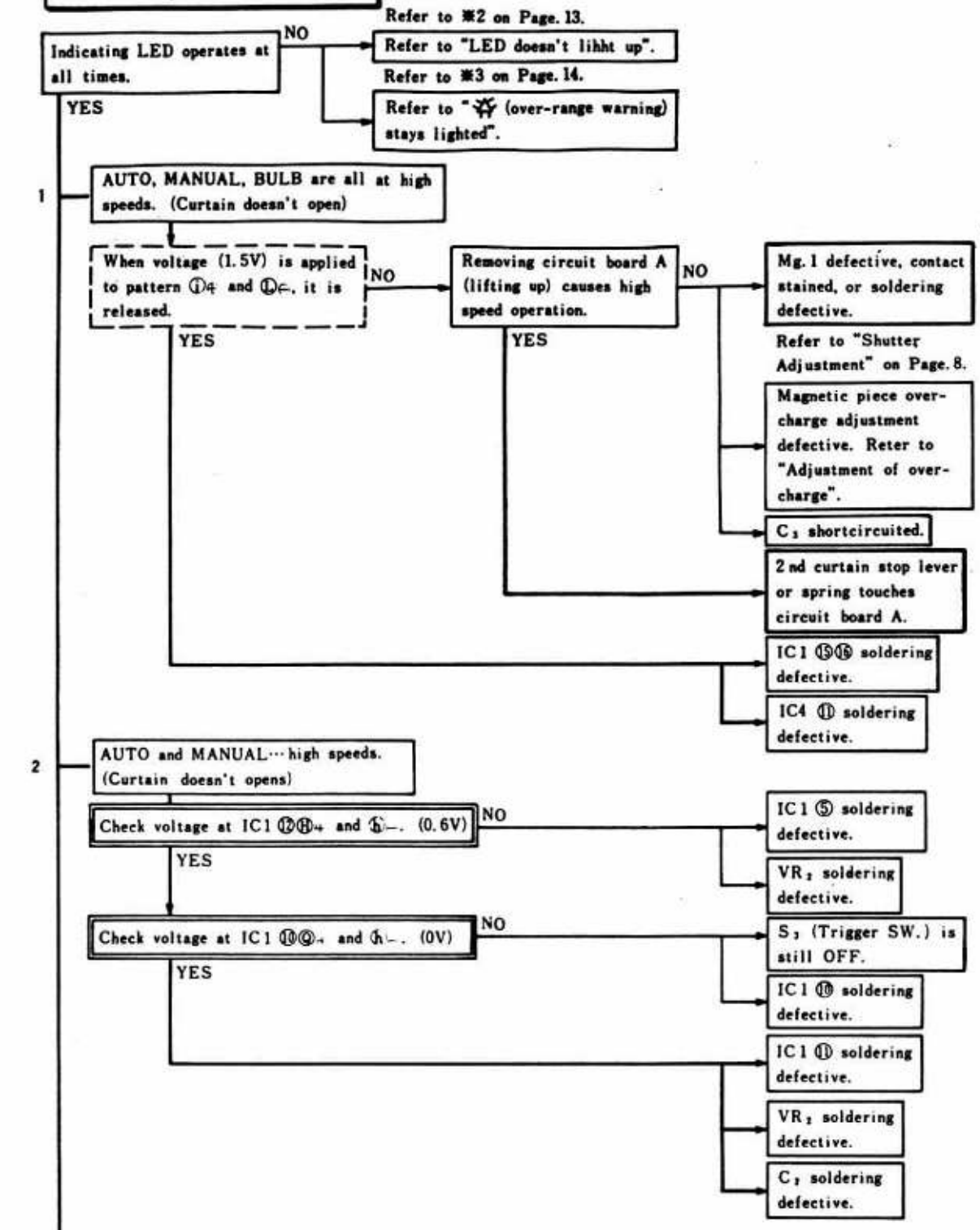
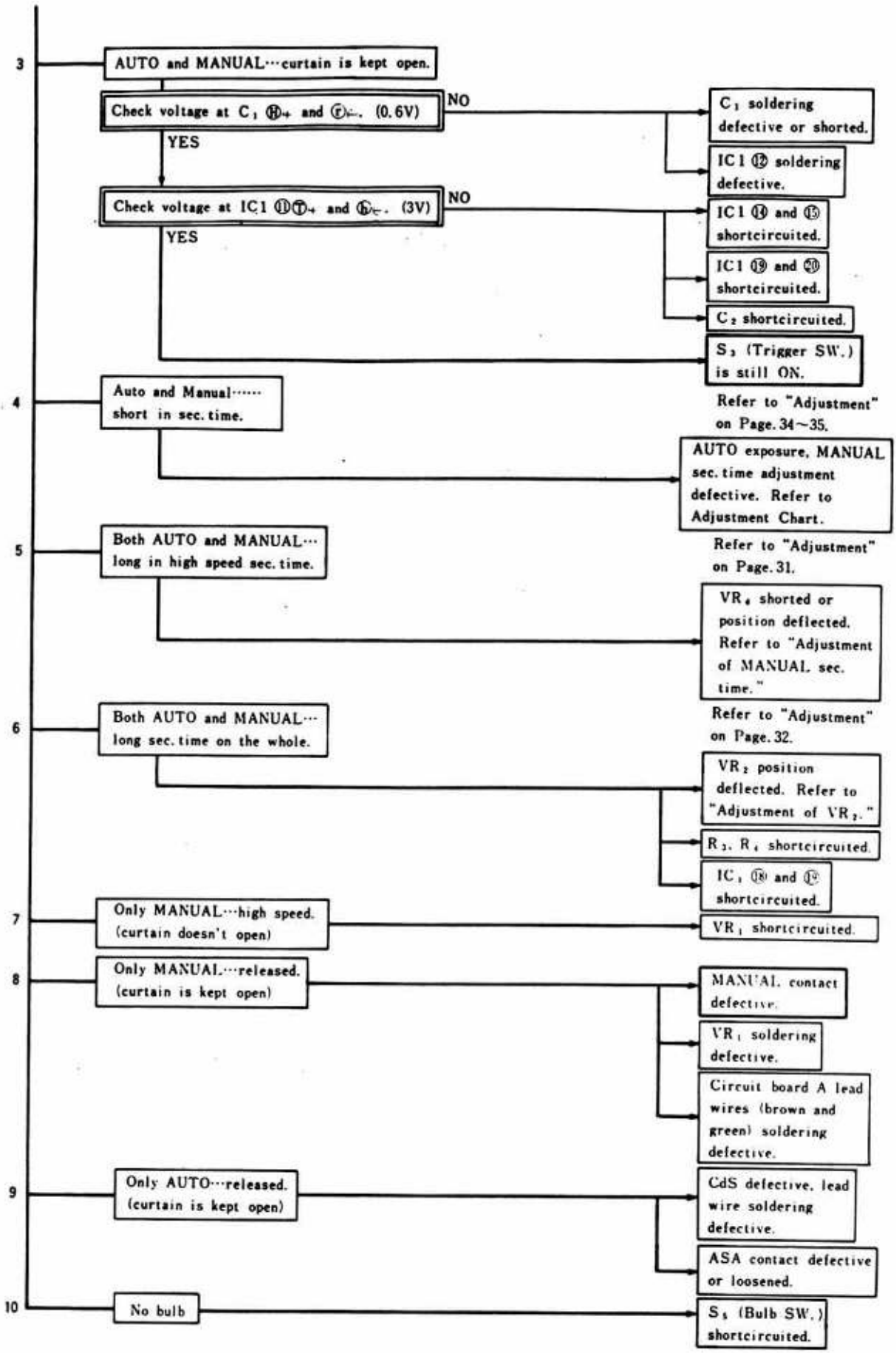

E
(over-range warning) stays lighted.
✱3
Occasionally becomes normal and shutter speed uneven.
NO
MANUAL high speed.
NO
Check voltage (0.7V) at IC1 ②Ⓐ+ and ⑮c.
NO
Pattern ⑧ and LED board soldering defective.
C₈ leg and pattern shortcircuited.
IC1 ⑦ soldering defective.
YES
YES
Check for R₂, R₉ and flexible board contact.
NO
Check voltage at IC1 ②Ⓐe and ⑮e. (0.7V)
NO
S₈ (AM change SW.) contact defective.
IC1 ② soldering defective.
YES
YES
S₁₀ (AV SW.) contact defective.
IC1 ① and ② shortcircuited.
IC1 ③ soldering defective.
R₂, R₉ legs and pattern contacted.
IC1 ① soldering defective.
F
Indicating LED flickers during ASA dial operation.
YES
S₉ (ASA SW.) contact defective.
SV resistor stained.
G
Indicating LED flickers during diaphragm ring operation.
YES
Connecting ring brush contact defective or one-sided.
AV resistor stained or position deflected.
IC1 ⑲ soldering defective.
H
Indication shows no change even when diaphragm is operated.
YES
IC1 ⑱ soldering defective.
I
Meter sensitivity is wrong.
YES
VR₂ soldering defective.
R₉ shortcircuited or soldering defective.
Refer to "Adjustment" on on Page. 33.
VR3 position deflected or shorted.
Refer to "Adjustment of VR₃."

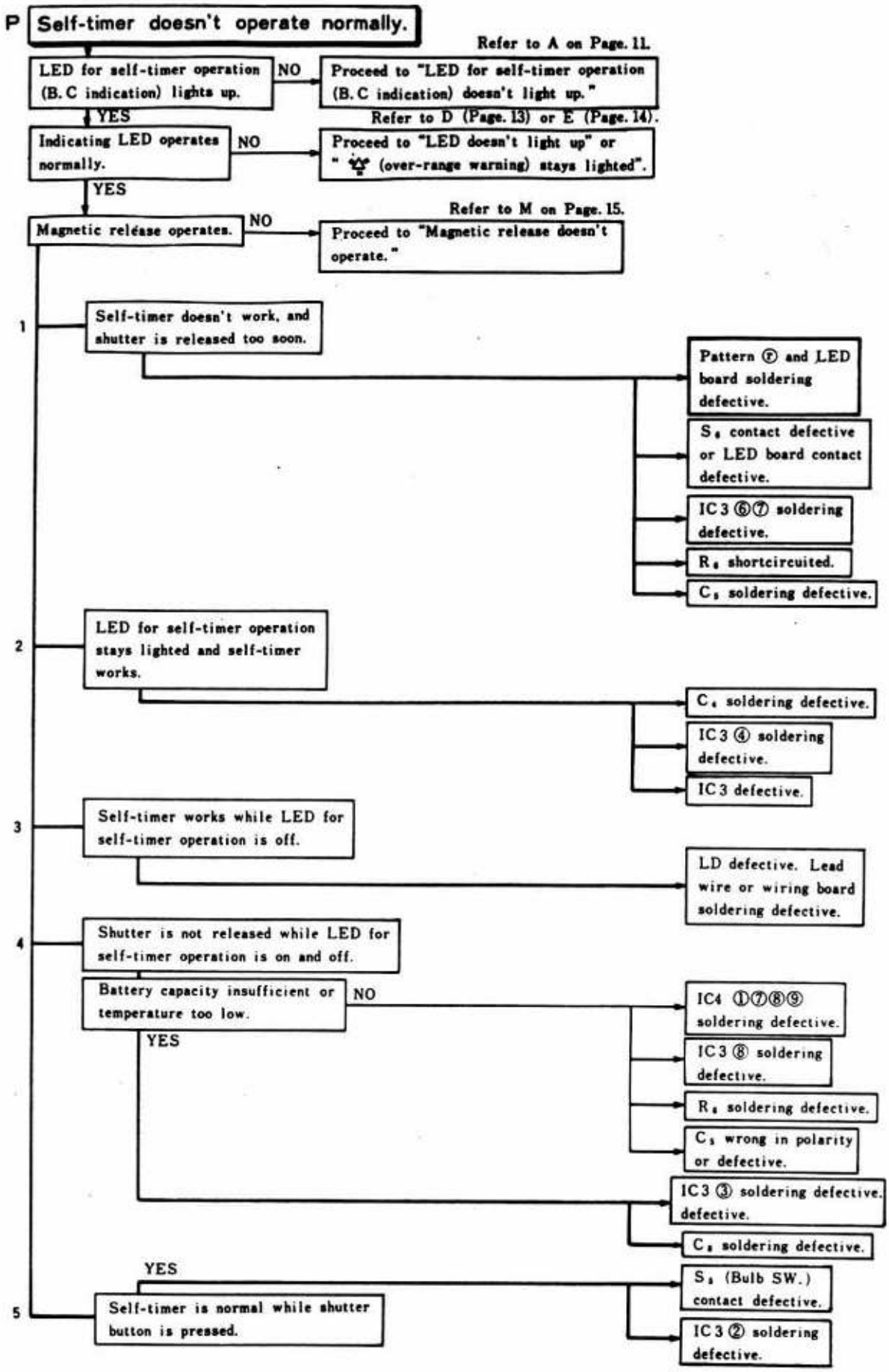

J
Indicating LED is too bright.
YES
R₈ shortcircuited.
K
Indicating LED is dark or incomplete.
Refer to "Adjustment" on Page. 36.
YES
Refer to "Adjustment of indicating LED view".
L
Indicating LED partially fails to light up.
YES
IC2 ①②⑨⑩⑪⑫⑭⑮⑯⑰⑲⑳ soldering defective.
IC2 defective
LED board defective.
M
Magnetic release doesn't operate.
LED for self-timer operation (B.C indcation) lights up.
NO
Refer to ✱1 on Page. 11.
Proceed to "LED for self-timer operation (B.C indication) doesn't light up".
Indicating LED operates at all times.
NO
Refer to E on Page. 14.
Refer to " ☼ (over-range warning) stays lighted"
Check voltage at IC4 ⑦ and ⑭. (3V)
NO
0.7V at all times
NO
YES
IC4 ⑦ soldering defective.
C₈ soldering defective.
S₄ (Reset SW.) is ON at all times.
Check voltage at ⑦ and ⑭. (3→0.7V)
Check voltage at IC4 ⑧ and ⑭. (3V→0.7V)
Check voltage at IC3 ⑦ and ⑭. (0.8V)
C₅ shortcircuited.
TR shortcircuited.
YES
YES
IC4 ⑧ soldering defective.
IC3 ⑧ soldering defective.
Mg. 2 defective or soldering defective.
IC4 ⑨ soldering defective.
When release interlocked lever (0571) is operated, shutter works.
NO
Mechanical troubles, mirror box, shutter, etc.
YES
Mg. 2 attracts excessively.
N
Even when ⚠ (high luminance alarm) is lighted, it can be released by operating release button.
YES
TR defective or soldering defective.

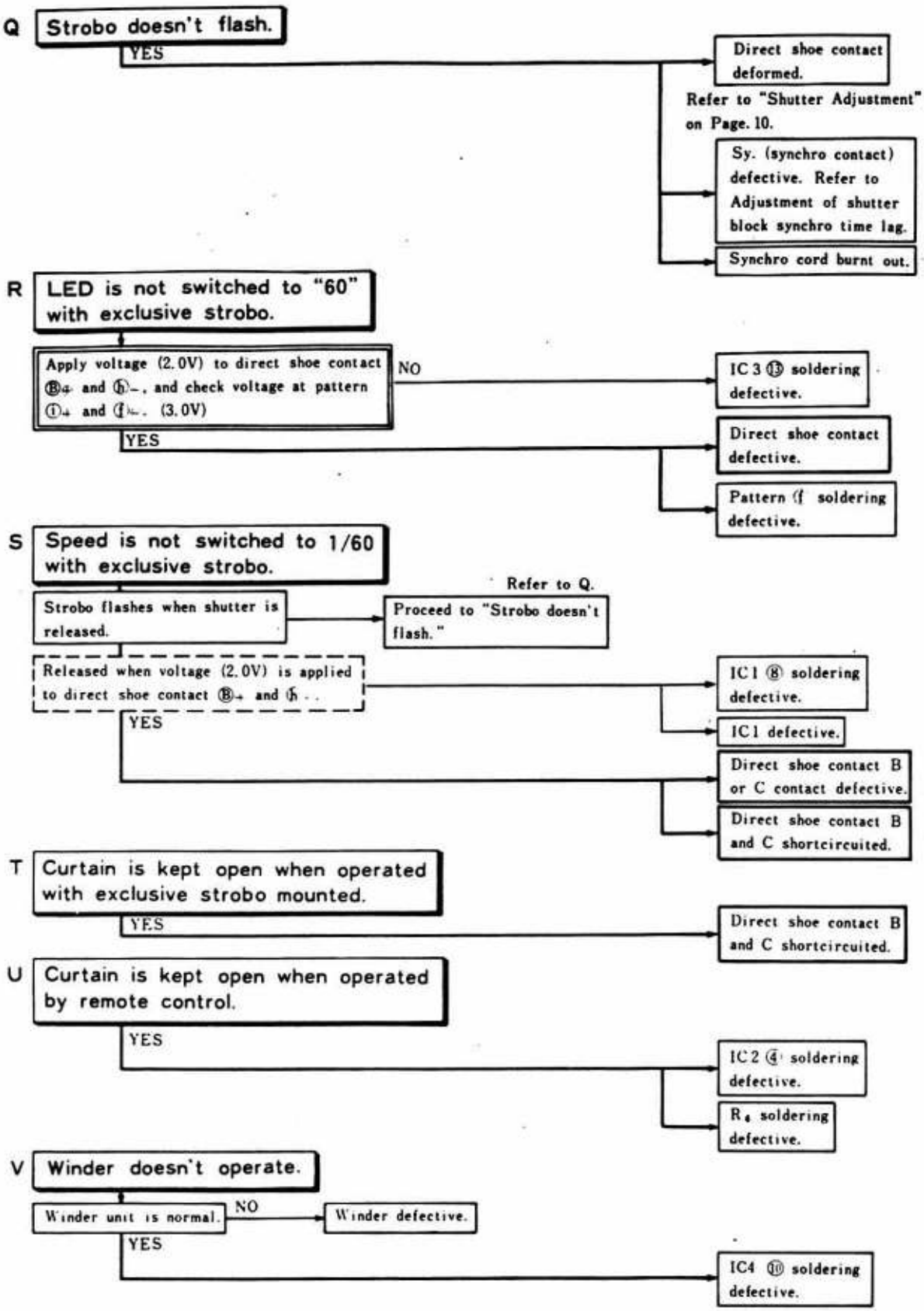
O Shutter speed is defective.


Indicating LED operates at all times.
NO
Refer to ※2 on Page. 13.
Refer to "LED doesn't lihht up".
Refer to ※3 on Page. 14.
Refer to "☆ (over-range warning) stays lighted".
YES
1
AUTO, MANUAL, BULB are all at high speeds. (Curtain doesn't open)
When voltage (1.5V) is applied to pattern ⑦ and ⑭, it is released.
NO
Removing circuit board A (lifting up) causes high speed operation.
NO
Mg. 1 defective, contact stained, or soldering defective.
YES
YES
Refer to "Shutter Adjustment" on Page. 8.
Magnetic piece over-charge adjustment defective. Reter to "Adjustment of over-charge".
C3 shortcircuited.
2 nd curtain stop lever or spring touches circuit board A.
IC1 ⑮⑯ soldering defective.
IC4 ⑪ soldering defective.
2
AUTO and MANUAL··· high speeds. (Curtain doesn't opens)
Check voltage at IC1 ⑫⊕ and ⏚. (0.6V)
NO
IC1 ⑤ soldering defective.
VR2 soldering defective.
YES
Check voltage at IC1 ⑩⑨ and ⏚. (0V)
NO
S3 (Trigger SW.) is still OFF.
IC1 ⑩ soldering defective.
YES
IC1 ⑪ soldering defective.
VR2 soldering defective.
C2 soldering defective.

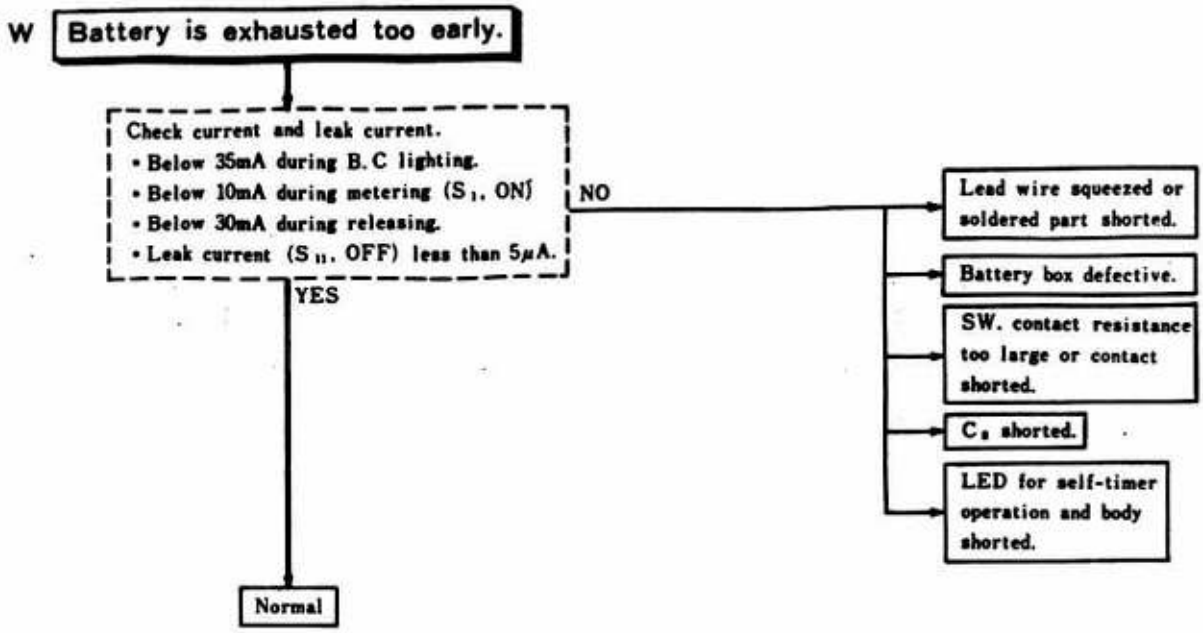
See Page. 17

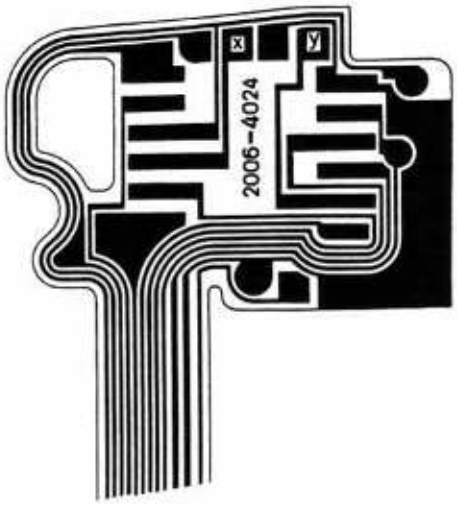

3
AUTO and MANUAL···curtain is kept open.
Check voltage at C1 ⊕+ and ⊖−. (0.6V)
NO
C1 soldering defective or shorted.
IC1 ⑫ soldering defective.
YES
Check voltage at IC1 ⑪⑰+ and ⑥−. (3V)
NO
IC1 ⑭ and ⑮ shortcircuited.
IC1 ⑲ and ⑳ shortcircuited.
C2 shortcircuited.
YES
S3 (Trigger SW.) is still ON.
4
Auto and Manual····· short in sec. time.
Refer to "Adjustment" on Page. 34~35.
AUTO exposure, MANUAL sec. time adjustment defective. Refer to Adjustment Chart.
5
Both AUTO and MANUAL··· long in high speed sec. time.
Refer to "Adjustment" on Page. 31.
VR4 shorted or position deflected. Refer to "Adjustment of MANUAL sec. time."
6
Both AUTO and MANUAL··· long sec. time on the whole.
Refer to "Adjustment" on Page. 32.
VR2 position deflected. Refer to "Adjustment of VR2."
R3, R4 shortcircuited.
IC1 ⑱ and ⑰ shortcircuited.
7
Only MANUAL···high speed. (curtain doesn't open)
VR1 shortcircuited.
8
Only MANUAL···released. (curtain is kept open)
MANUAL contact defective.
VR1 soldering defective.
Circuit board A lead wires (brown and green) soldering defective.
9
Only AUTO···released. (curtain is kept open)
CdS defective, lead wire soldering defective.
ASA contact defective or loosened.
10
No bulb
S5 (Bulb SW.) shortcircuited.

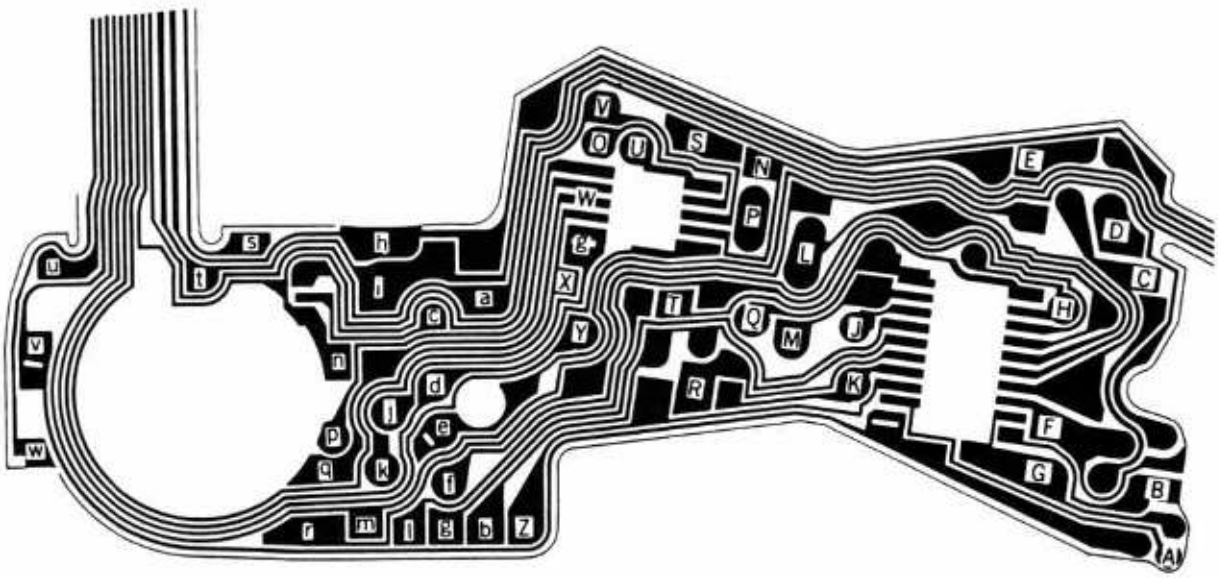

P
Self-timer doesn't operate normally.
LED for self-timer operation (B.C indication) lights up.
NO
Refer to A on Page. 11.
Proceed to "LED for self-timer operation (B.C indication) doesn't light up."
YES
Indicating LED operates normally.
NO
Refer to D (Page. 13) or E (Page. 14).
Proceed to "LED doesn't light up" or " (over-range warning) stays lighted".
YES
Magnetic release operates.
NO
Refer to M on Page. 15.
Proceed to "Magnetic release doesn't operate."
1
Self-timer doesn't work, and shutter is released too soon.
Pattern ⓟ and LED board soldering defective.
S6 contact defective or LED board contact defective.
IC3 ⑥⑦ soldering defective.
R6 shortcircuited.
C3 soldering defective.
2
LED for self-timer operation stays lighted and self-timer works.
C4 soldering defective.
IC3 ④ soldering defective.
IC3 defective.
3
Self-timer works while LED for self-timer operation is off.
LD defective. Lead wire or wiring board soldering defective.
4
Shutter is not released while LED for self-timer operation is on and off.
Battery capacity insufficient or temperature too low.
NO
IC4 ①⑦⑧⑨ soldering defective.
IC3 ⑧ soldering defective.
R8 soldering defective.
C5 wrong in polarity or defective.
YES
IC3 ③ soldering defective.
defective.
C8 soldering defective.
YES
5
Self-timer is normal while shutter button is pressed.
S1 (Bulb SW.) contact defective.
IC3 ② soldering defective.


Q
Strobo doesn't flash.
YES
Direct shoe contact deformed.
Refer to "Shutter Adjustment" on Page. 10.
Sy. (synchro contact) defective. Refer to Adjustment of shutter block synchro time lag.
Synchro cord burnt out.
R
LED is not switched to "60" with exclusive strobo.
Apply voltage (2.0V) to direct shoe contact ⑧+ and ⑤−, and check voltage at pattern ①+ and (f)−. (3.0V)
NO
IC 3 ⑬ soldering defective.
YES
Direct shoe contact defective.
Pattern (f soldering defective.
S
Speed is not switched to 1/60 with exclusive strobo.
Strobo flashes when shutter is released.
Refer to Q.
Proceed to "Strobo doesn't flash."
Released when voltage (2.0V) is applied to direct shoe contact ⑧+ and ⑤−
IC1 ⑧ soldering defective.
IC1 defective.
YES
Direct shoe contact B or C contact defective.
Direct shoe contact B and C shortcircuited.
T
Curtain is kept open when operated with exclusive strobo mounted.
YES
Direct shoe contact B and C shortcircuited.
U
Curtain is kept open when operated by remote control.
YES
IC2 ④ soldering defective.
R4 soldering defective.
V
Winder doesn't operate.
Winder unit is normal.
NO
Winder defective.
YES
IC4 ⑩ soldering defective.

W **Battery is exhausted too early.**


Check current and leak current.
• Below 35mA during B.C lighting.
• Below 10mA during metering (S_1, ON)
• Below 30mA during releasing.
• Leak current (S_{II}, OFF) less than 5μA.
NO
YES
Lead wire squeezed or soldered part shorted.
Battery box defective.
SW. contact resistance too large or contact shorted.
C_3 shorted.
LED for self-timer operation and body shorted.
Normal


x
y
2006–4024


V
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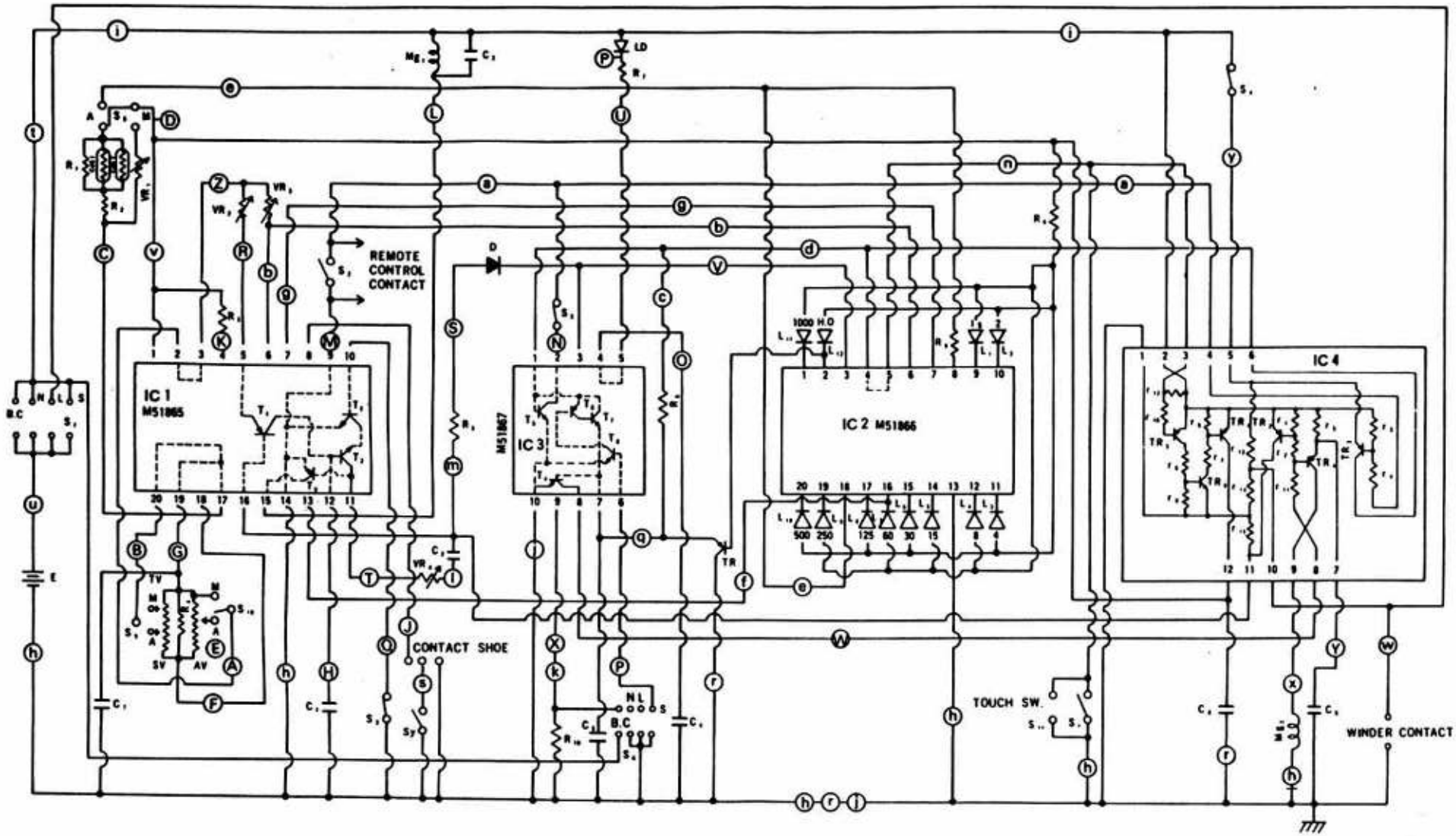
REMOTE CONTROL CONTACT
IC 1 M51865
IC 2 M51866
IC 3 M51867
IC 4
CONTACT SHOE
TOUCH SW.
WINDER CONTACT
B.C
N
L
S

Inspection Specification

1. This specification includes the allowable quality levels in the production line so that we can guarantee the quality of products to the general users. The specifications are given in detail item by item so that you can refer to them when handling the requirements of users. Also, you can use the specifications for rechecking the products after completion of repair.
2. When carrying out outgoing or incoming inspections, do not directly apply the specifications to the measured values but correctly understand the purposes of the inspections and then do the checkings, for instance, in accordance with the incoming inspection specification manual.
3. Some users with special purposes may sometimes require different specifications because they are not satisfied with this specification. In that case, give priority to the users' requests and then make the necessary adjustments after checking to see if they are possible or not.

Item	Check point	Contents	Checking·Adjustment (Refer to Disass'y·Ass'y. Adjust manual)
Winding	Winding lever	Not smooth (uneven, catching), shifted back, noise, vertically loose. Winding torque···less than 4 kg·cm (with film).	P.23, 24
	Spool	Operation···Not smooth (uneven, squeaky). Check film winding. No-load operation···250±50 g.	P. 3, 4
	Sprocket	Operation···Slip, back lash (after winding). Operation with rewind button depressed (uneven, catching). Claw position.	P. 2, 4
Rewinding	Rewind button	Operation···Depressing, releasing, catching, uneven. Rewind button lock position···over 0.3 mm (from bottom of lower cover).	P. 3
	Rewind crank	Operation···Off-center, squeaky, gritty, defective spring. Film rewinding resistance···250~650 g.	P.46
Film counter	Feed	Operation···When wound twice from S, indication shoud be 1. It should correctly operate up to 36+1. Check for failure, standstill, skip, deflection. Deflection of scale position···Center of letter should be within the range of index. Scale letter should be easy to read.	P. 6, 10
	Return	Operation···It should return to S when back cover is opened.	
Film signal	Appearance	Operation···Signal should be as illustrated at the 1st frame on counter, midway, 36+2 frames. Check for unsmooth operation (catching, etc). No film / 1st frame (over 1/4) / Midway / 36+2 frames (Slightly visible)	P. 7
	Disappearance	Operation···Signal should disappear just before film is disengaged from spool in rewinding.	

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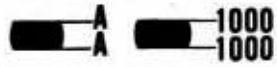
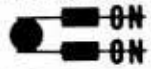
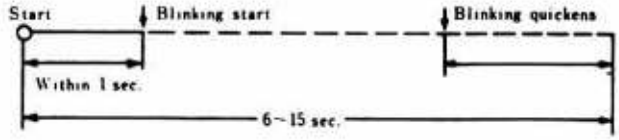
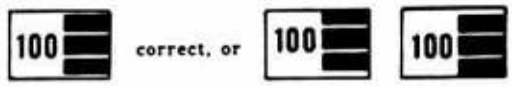
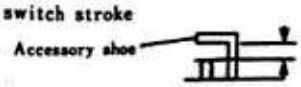
<table>
<tr><th>Item</th><th>Check point</th><th>Contents</th><th>Checking-Adjustment (Refer to Disass'y-Ass'y-Adjust manual)</th></tr>
<tr><td rowspan="6">Shutter</td><td>Shutter button</td><td>Operation···Not smooth, loose, catching, shock, stained, wrong position.
Operating-resistance···250±50 g.
After-operation allowance···over 0.2 mm</td><td>P.24, 46</td></tr>
<tr><td>Speed dial</td><td>Operation···Not smooth, clicking, auto lock, loose.
Auto lock···Loose, squeaky, gritty, etc.
Scale deflection···Center of letter should be aligned to index.
  </td><td>P.46</td></tr>
<tr><td>Shutter curtain</td><td>Operation···Overlap, return (during little-by-little winding), bounce, 2nd curtain appearance (in slow shutter), bump, stop, noise.
Curtain speed···Within 13 ms for both 1st and 2nd curtains.</td><td>P.47~51</td></tr>
<tr><td>Shutter speed</td><td>Allowable range···Refer to P.5.</td><td>P.34</td></tr>
<tr><td>Synchro</td><td>Conduction···Light emission. No shorting during winding.
Delay time
<table>
<tr><th>Contact</th><th>Shutter speed</th><th>Measurement</th><th>Allowable range</th></tr>
<tr><td rowspan="2">X</td><td rowspan="2">1/60 & strobo auto</td><td>Time until contact is ON after curtain running. (A range)</td><td>over 0.3 ms</td></tr>
<tr><td>Time until curtain appearance after contact is ON. (B range)</td><td>over 2 ms</td></tr>
</table>
Contact efficiency
<table>
<tr><th>Contact</th><th>Measuring time</th><th>Shutter speed</th><th>Allowable range</th></tr>
<tr><td>X</td><td>1.0 ms</td><td>1/60 & strobo auto</td><td>over 60%</td></tr>
</table>
Insulation resistance···over 10 MΩ (250V D.C resistance meter)</td><td>P.40</td></tr>
<tr><td rowspan="2">Operating switch</td><td>Lever</td><td>Operation···Clicking, deflection, return, not smooth, catching, defective spring. Return to ON position after B.C check, return to click position from lever contact position self side.
Letter indication should be aligned to lever index.
  </td><td>P.45</td></tr>
<tr><td>Self-timer</td><td>Operation···Lamp should start blinking within 1 sec. after S button release, and blinking cycle should become faster just before release.
Alteration of blinking cycle:
  </td><td>P.39</td></tr>
</table>

<table>
<tr><th>Item</th><th>Check point</th><th>Contents</th><th>Checking-Adjustment (Refer to Disass'y-Ass'y, Adjust manual)</th></tr>
<tr><td>Operating switch</td><td>Battery Checker</td><td>Operation···Lamp should be lighted exactly.
Lamp should be on in the range from 1/2 or over to B.C contact.

</td><td>P.38</td></tr>
<tr><td rowspan="3">Focus</td><td>Mirror</td><td>Operation···Loose, two-step, timing, wrong position, bounce.
Stop position···45°±30°
Raising position···It should be unseen behind flare preventing board.</td><td>P.16</td></tr>
<tr><td>Body back</td><td>43.70±0.01 mm</td><td>P.43</td></tr>
<tr><td>Finder back</td><td>43.56±0.025 mm</td><td>P.44</td></tr>
<tr><td>Finder</td><td>View</td><td>Image turnover, ∞ matching, scale plate deflection.</td><td>P.44</td></tr>
<tr><td></td><td>Speed figure band</td><td>Scratches, dust, stains, etc.
Figure and LED should be positioned within figure band.

</td><td>P.19</td></tr>
<tr><td>Back cover</td><td>Opening, Closing</td><td>Operation···Locking, looseness after locking. It should smoothly release when rewinding knob is shifted up.</td><td rowspan="2">P.10</td></tr>
<tr><td></td><td>Pressure plate</td><td>Distortion, projection, irregular surfaces, impurities, stains, inclining, easy to come loose.</td></tr>
<tr><td>Auto exposure</td><td>ASA dial</td><td>Operation···Not smooth, catching, deflecting.
For ASA letter, scale and frame, the 3rd scale should be visible.
 
</td><td>P.25, 46</td></tr>
<tr><td></td><td>Over-rang noninter locked lock</td><td>LENS: 50mm F1.4 ASA: 100
<table><tr><th>Luminance</th><th>F</th><th>Shutter speed</th><th>Allowable range</th><th>Spec.</th></tr><tr><td rowspan="2">EV 15</td><td rowspan="2">F5.6</td><td rowspan="2">1000</td><td>Lock should be effective at EV 16.25.</td><td>+1.25 EV</td></tr><tr><td>Release should be possible at EV 14.25.</td><td>−0.75 EV</td></tr></table>It should be exactly locked with 1000 ● or 1000 ☼ LED lamp lighted.</td><td>P.37</td></tr>
</table>

<table>
<tr><th>Item</th><th>Check point</th><th>Contents</th><th>Checking·Adjustment (Refer to Disass'y·Ass'y·Adjust manual)</th></tr>
<tr><td rowspan="4">Auto exposure</td><td>LED indication</td><td>Scratches, dust, cloud, light leakage (with dark finder)
LED difference···LENS: 50 mm F 1.4 ASA: 100, Auto
<table>
<tr><th rowspan="2">Luminance</th><th rowspan="2">F-number</th><th rowspan="2">Correct LED</th><th colspan="6">Allowable range</th><th rowspan="2">Spec.</th></tr>
<tr><th></th><th>+1</th><th>+0.5</th><th>0</th><th>−0.5</th><th>−1</th></tr>
<tr><td rowspan="3">EV 14</td><td rowspan="3">F 5.6</td><td rowspan="3">500</td><td>1000</td><td>☼</td><td>☼</td><td>●</td><td>●</td><td>●</td><td rowspan="9">± 1 EV</td></tr>
<tr><td>500</td><td>●</td><td>☼</td><td>☼</td><td>☼</td><td>●</td></tr>
<tr><td>250</td><td>●</td><td>●</td><td>●</td><td>☼</td><td>☼</td></tr>
<tr><td rowspan="3">EV 11</td><td rowspan="3">F 8</td><td rowspan="3">30</td><td>60</td><td>☼</td><td>☼</td><td>●</td><td>●</td><td>●</td></tr>
<tr><td>30</td><td>●</td><td>☼</td><td>☼</td><td>☼</td><td>●</td></tr>
<tr><td>15</td><td>●</td><td>●</td><td>●</td><td>☼</td><td>☼</td></tr>
<tr><td rowspan="3">EV 9</td><td rowspan="3">F 11</td><td rowspan="3">4</td><td>8</td><td>☼</td><td>☼</td><td>●</td><td>●</td><td>●</td></tr>
<tr><td>4</td><td>●</td><td>☼</td><td>☼</td><td>☼</td><td>●</td></tr>
<tr><td>2</td><td>●</td><td>●</td><td>●</td><td>☼</td><td>☼</td></tr>
</table>
LED other than correct LED and adjacent LED should not be lighted.
LED lighting voltage···2.0 V (in darkness).</td><td rowspan="2">P. 19, 33, 35</td></tr>
<tr><td>Exposure correction</td><td>Operation···Not smooth, clicking, lock release.</td></tr>
<tr><td>Exposure error</td><td>LENS: 50 mm F 1.4 ASA: 100
<table>
<tr><th>Luminance</th><th>F</th><th>Shutter speed</th><th>EE level allowable range</th><th>Variation</th></tr>
<tr><td>EV 15</td><td>F 5.6</td><td>1/1000</td><td rowspan="3">Within±0.9 EV</td><td rowspan="3">Within±0.6 EV</td></tr>
<tr><td>EV 14</td><td>F 5.6</td><td>1/500</td></tr>
<tr><td>EV 9</td><td>F 5.6</td><td>1/15</td></tr>
</table></td><td>P. 35</td></tr>
<tr><td rowspan="5">Other performance</td><td>Checker voltage</td><td>Room temperature: 25°C
<table>
<tr><th>Voltage</th><th>Allowable</th><th>Spec.</th></tr>
<tr><td rowspan="2">2.0 V</td><td>• Should be on at 2.15 V</td><td rowspan="2">±0.15V</td></tr>
<tr><td>• Should be off at 1.85 V</td></tr>
</table></td><td>P. 38</td></tr>
<tr><td>Touch switch operating resistance</td><td>
<table>
<tr><th>Item</th><th>Allowable range</th></tr>
<tr><td>LED lamp</td><td>10~30 MΩ</td></tr>
</table></td><td>P. 36</td></tr>
<tr><td>Release lock minimum voltage</td><td>
<table>
<tr><th>Item</th><th>Allowable range</th><th>Spec.</th></tr>
<tr><td>Release lock voltage</td><td>• Should be locked at 1.75 V.
• Should be released at 2.15 V.</td><td>2.0 V $^{+0.15\ V}_{-0.25\ V}$</td></tr>
</table></td><td>P. 37</td></tr>
<tr><td>Performance assuring voltage</td><td>2.15 V~3.0 V (constant voltage: 2.25~2.8 V)</td><td>P. 40</td></tr>
<tr><td>Current consumption</td><td>Constant voltage: 2.8 V
<table>
<tr><th>Item</th><th>Spec.</th></tr>
<tr><td>B. C lighted</td><td>35 mA max.</td></tr>
<tr><td>• LED 1 lamp
2 lamps
• Metering</td><td>10mA max.</td></tr>
<tr><td>Releasing</td><td>30 mA max.</td></tr>
</table></td><td>—</td></tr>
</table>

Item	Check point	Contents	Checking·Adjustment (Refer to Disass'y·Ass'y·Adjust manual)
Other performance	Leak current	Constant voltage: 2.8 V, 5 μA max.	—
Accessories	Accessory	Looseness, spring pressure, removal, inclining. Safety switch stroke  	P.46
	Remote control terminal	Operation···It should be easy to detach. Looseness, heavy, release, catching. Cable release switch operation···70~300 g.	P.13
	Synchro terminal	It should be easy to attach and detach. Looseness, stains, easy to come loose.	P.13
	Eye-piece attachment	Clicking, easy to come loose, inclined.	P.46
	Lens lock	Operation···Heavy, light, gritty, squeaky, loose.	P.14
Others	Interchanges ability with exclusive strobo	LED 60 blinking with exclusive strobo charge completed. Item: LED blinking — Spec.: ☼ (ON) voltage 2.0 V; ● (OFF) voltage 1.6V Tuning···With charge completed, it should be tuned irrespective of shutter dial position. Caution : The 300 Ω of resistor must connect to the plus side of power sause when measure it.	P.42
	Interchangeability with winder	Winder connecting terminal voltage Winding completed (S 4 ON)···over 1.0 V Releasing completed (S 4 OFF)···below 0.2 V	P.23

Shutter speed specification

Speed / Specification	Strobo auto change 1/50	1	1/2	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500	1/1000
Standard value	20 ms	1000ms	500ms	250ms	125ms	62.5ms	31.3ms	15.6ms	7.81ms	3.91ms	1.95ms	0.977ms
Max. limit value	23 ms	1410ms	707ms	354ms	177ms	88.4ms	44.3ms	22.1ms	11.0ms	5.53ms	2.76ms	1.38ms
Min. limit value	17 ms	707ms	354ms	177ms	88.4ms	44.3ms	22.1ms	11.0ms	5.53ms	2.76ms	1.38ms	0.691ms
Specified value	+0.21 EV −0.23 EV	±0.5 EV										

Shutter speed and uneven exposure

Exposure time at both ends (A, C ranges) to center (B range) should be within ±0.25%, and maximum and minimum values of B range should be within 0.4EV (+32% or −25%).

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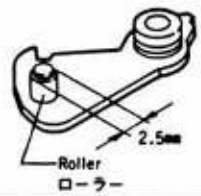
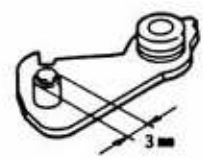
Shutter Parts List for XG series

1. In this parts list, the type of shutters made available up to now since the beginning of the massproduction of 2006 series is classified into types 1~4.
2. See the parts list on the next page for each type.
3. The part number on the exploded view of the parts list is sometimes provided with ● or ●.
   ● : Not interchangeable depending on the type of shutter.
   ◉ : Discontinued in the course of production, addition or temporarily used.
   Regarding the parts provided with ● or ●, the description, differential points and replaceable type (common type) is given in the specified page of Parts List Part Ⅱ.
4. Inter changeability of shutter unit.
   Shutter units (completed) of types 1~4 are interchangeable, but pay attention for combinations of parts for body such as mirror return lever lock claw set (0522) and release operation lever spring (2035) shown below.

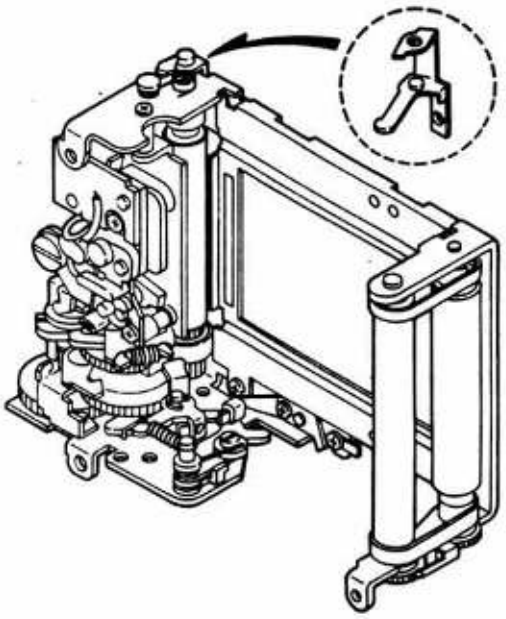
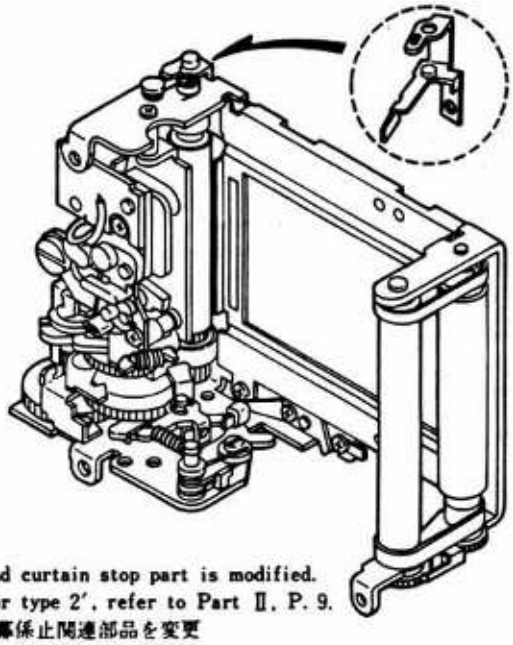
1. このパーツリストは2006系量産当初から現在までのシャッターのタイプを1～4型と分け，それぞれのタイプごとのパーツリストに分けられています。
2. 次ページに各タイプの見分け方を記載していますので，該当するタイプのパーツリストを利用して下さい。
3. パーツリストの展開図側の部品番号には●，又は◉印がついている場合があります。
   ●印：シャッターのタイプによって互換性のない部品を示す。
   ◉印：生産途中に廃止，新設，或いは一時的に使用された部分を示す。
   ●印や◉印のついている部品はPart List Part Ⅱの指示されたページに，タイプによって異なる点と共用できるタイプを示していますので参照して下さい。
4. シャッターユニットの互換性
   1～4型各タイプのシャッターユニット（完成品）はそれぞれ互換性がありますが，下図のボデー部品（ミラー戻しレバーロック爪セット……0522，吸着用スプリング……2035）との組合わせに留意して下さい。

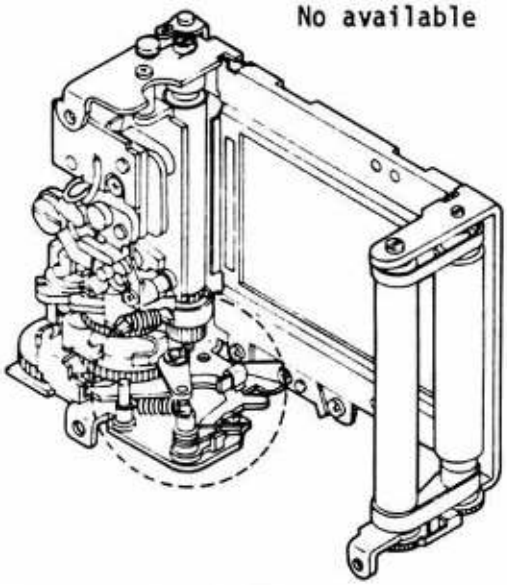
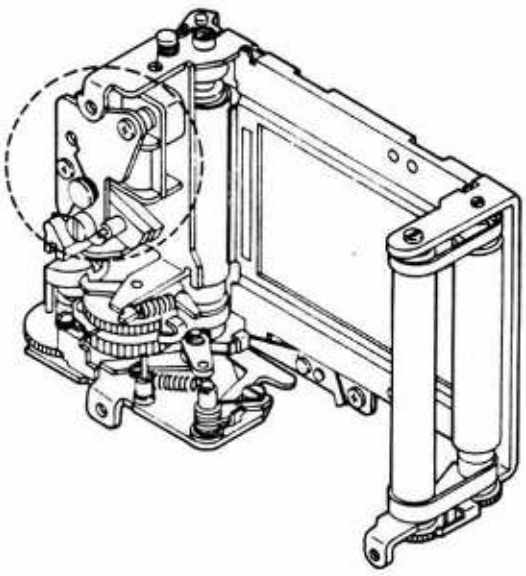
For type 1, 2, 2′	For type 3, 3′, 4		
2006-0522-01	2006-0522-02 (×)	2006-0522-02 (×) 	2006-0522-03 
For type 1, 2, 2′, 3, 3′			For type 4
2006-2035-03 (×) ●2035-06 can be used. ●2035-06使用可能			2006-2035-06

●(×) marked part will not be supplied.
●(×) 印の部品は供給しません。

■Type of shutter unit / シャッターユニットの種類

- The shutter unit for XG is available in 4 types 1~4.
- XG系用のシャッターユニットには下表のように，大きく分けて1～4型の4種類あります。

Type 1	Type 2, 2′
No available 	No available  ● 2 nd curtain stop part is modified. ● For type 2′, refer to Part Ⅱ, P. 9. ● 2幕係止関連部品を変更 ● 2′型については，Part Ⅱ，P. 9を参照して下さい

Type 3, 3′	Type 4
No available  ● Brake mechanism is modified. ● For type 3′, refer to Part Ⅱ., P. 1 and 4. ● ブレーキ機構を変更 ● 3′型についてはPart Ⅱ，P. 1，4を参照して下さい	Assy. Part No. 2006-0222-11  ● Control mechanism is simplified. ● 制御機構を簡素化

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2006-0264	1
2006-2104	2
2006-2105	2
2006-2106	2
2006-2107	1
2006-2108	1
2006-2114	2
2006-2118	1
2006-2123	1
2006-2126	1
2006-2130	1
2006-2131	1
2006-2132	1
2006-2143	1
2006-2144	1
2006-2147	1
2006-2148	1
2006-2149	2
2006-2150	2
2006-2157	2
2006-2158	2
2006-2166	1
2006-2168	2
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2006-2174	1
2006-2176	2
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2006-2189	2
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2006-2198	1
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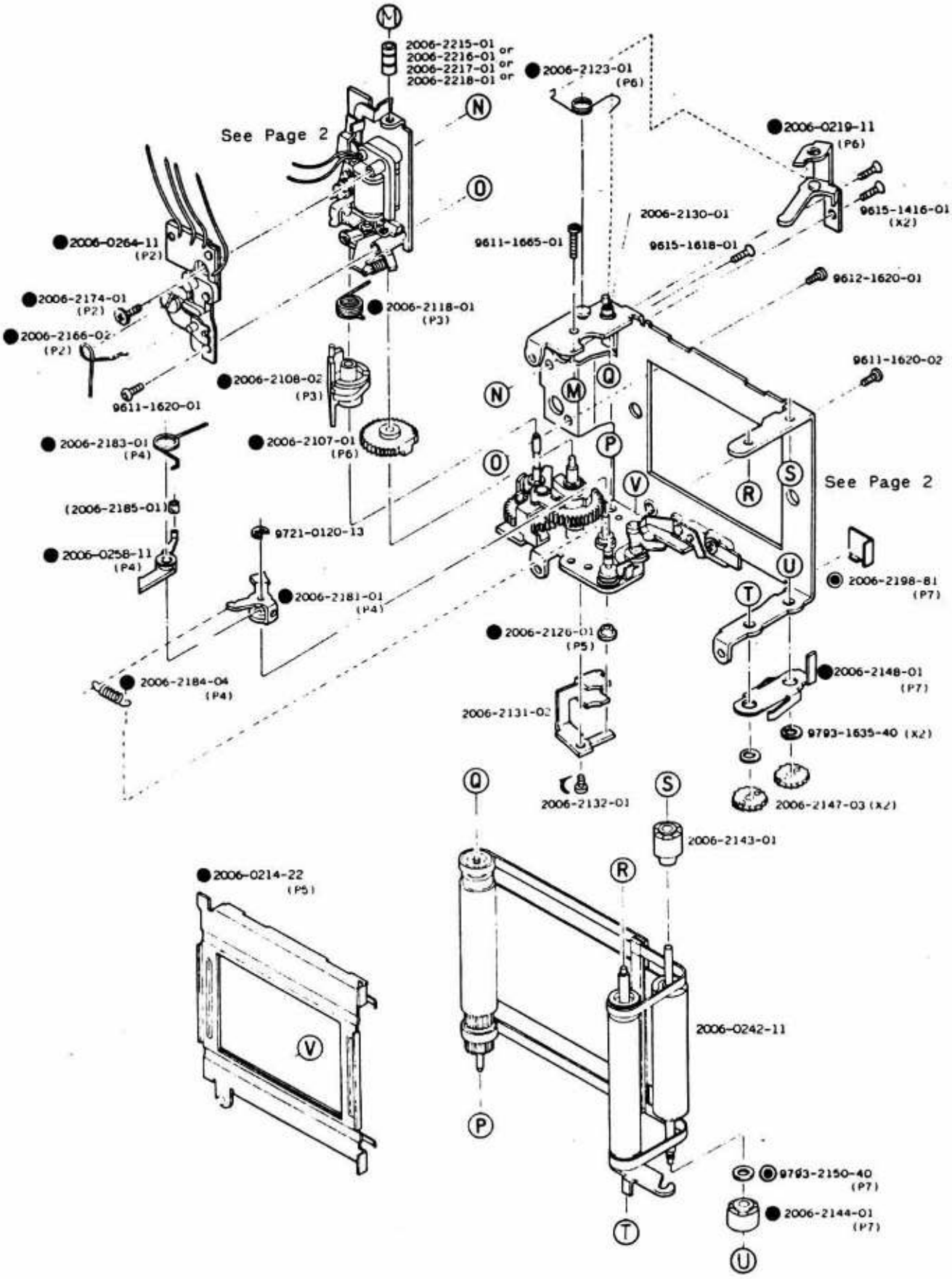
2006-2216	1
2006-2217	1
2006-2218	1
Screw	
9611-1620-01	1
9611-1620-02	1
9611-1665-01	1
9612-1620-01	1,2
9612-1645-01	2
9615-1416-01	1
9615-1420-01	2
9615-1618-01	1
E-ring	
9721-0120-13	1,2
9721-0150-00	2
9721-0150-13	2
Washer	
9791-1628-40	2
9793-1635-40	1
9793-2150-40	1

Type 1


2006-2215-01 or
2006-2216-01 or
2006-2217-01 or
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2006-0219-11 (P6)
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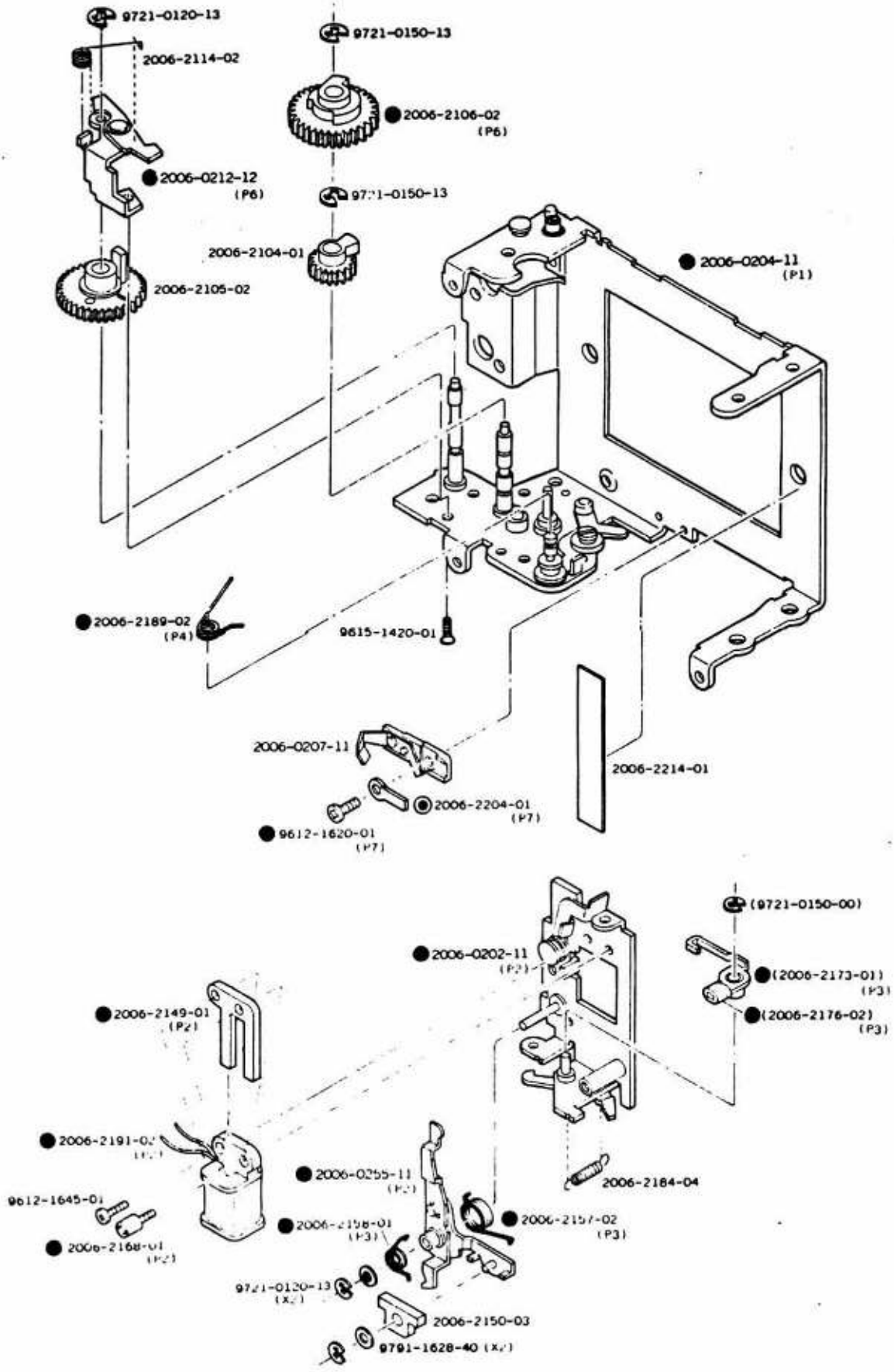
Part No.	Part Name		Qty
2006-0214-22	Shutter cover set	シャッターカバー板セット	1
2006-0219-11	2nd. curtain stop lever set	2幕係止レバーセット	1
2006-0242-11	Shutter curtain set	シャッター幕セット	1
2006-0258-11	1st. curtain brake lever set	1幕ブレーキレバーセット	1
(2006-2185-01)	Brake lever isolation collar	1幕ブレーキ絶縁カラー	1
2006-0264-11	Trigger base plate set	トリガー台板セット	1
2006-2107-01	2nd. curtain shutter gear	2幕シャッターギヤー	1
2006-2108-02	Control cam	制御カム	1
2006-2118-01	Control cam operation spring	制御カム駆動SP	1
2006-2123-01	2nd. curtain stop lever spring	2幕係止レバーSP	1
2006-2126-01	Curtain shaft receiver-B	幕軸受B	1
2006-2130-01	Adjusting screw	幕軸調整ビス	1
2006-2131-02	Curtain ribbon guide plate	幕リボンガイド板	1
2006-2132-01	Ribbon guide plate screw	幕リボンガイド板止めビス	1
2006-2143-01	2nd. curtain roller-A	2幕ローラーA	1
2006-2144-01	2nd. curtain roller-B	2幕ローラーB	1
2006-2147-03	Ratchet	幕スプリング筒軸止めラチエット	2
2006-2148-01	Ratchet stop spring	ラチエット止めバネ	1
2006-2166-02	Trigger contact	トリガー接片	1
2006-2174-01	Screw	トリガー台板締付ねじ	1
2006-2181-01	2nd. curtain brake lever	2幕ブレーキレバー	1
2006-2183-01	1st. curtain brake spring-B	1幕ブレーキSP-B	1
2006-2184-04	2nd. curtain brake spring	2幕ブレーキSP	1
2006-2198-81	Light shield plate	幕SP筒遮光板	1
2006-2215-01	Adjusting collar-A	制御板取付カラーA	O-1
2006-2216-01	Adjusting collar-B	制御板取付カラーB	O-1
2006-2217-01	Adjusting collar-C	制御板取付カラーC	O-1
2006-2218-01	Adjusting collar-D	制御板取付カラーD	O-1
9611-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9611-1620-02	Phillips type screw	十字穴付なべ頭小ねじ	1
9611-1665-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9615-1416-01	Phillips type screw	十字穴付皿頭小ねじ	2
9615-1618-01	Phillips type screw	十字穴付皿頭小ねじ	1
9721-0120-13	E-ring	Eリング	1
9793-1635-40	Washer	薄ワッシャー	2
9793-2150-40	Washer	薄ワッシャー	1

Type 1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Part No.	Part Name		Qty
2006-0202-11	Control base plate set	制御台板セット	1
(2006-2173-01)	Trigger contact operation lever	トリガー接片作動レバー	1
(2006-2176-02)	Operation lever isolation tube	トリガー接片作動レバー絶縁チューブ	1
(9721-0150-00)	E-ring	E リング	1
2006-0204-11	Shutter base plate set	シャッター台板セット	1
2006-0207-11	X contact plate set	X 接片セット	1
2006-0212-12	1st. curtain stop lever set	1幕係止レバーセット	1
2006-0255-11	2nd. curtain release lever set	2幕解除レバーセット	1
2006-2104-01	Charge gear-B	チャージギヤーB	1
2006-2105-02	Charge gear-A	チャージギヤーA	1
2006-2106-02	1st. curtain shutter gear	1幕シャッターギヤー	1
2006-2114-02	1st. curtain stop lever spring	1幕係止レバーSP	1
2006-2149-01	Shutter magnet core	シャッターマグネット鉄芯	1
2006-2150-03	Shutter magnet	シャッターマグネット吸着片	1
2006-2157-02	2nd. curtain release lever spring	2幕解除レバーSP	1
2006-2158-01	Over charge spring	吸着片オーバーチャージSP	1
2006-2168-01	Trigger base plate screw	トリガー台板取付ねじ	1
2006-2184-04	2nd. curtain brake spring	2幕ブレーキSP	1
2006-2189-02	X lever spring	X レバーSP	1
2006-2191-02	Shutter magnet bobbin	シャッターマグネットボビン	1
2006-2204-01	X earth plate	X アース板	1
2006-2214-01	Tape (per roll)	幕フチ金保護テープ	1
9612-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1645-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9615-14.0-01	Phillips type screw	十字穴付皿頭小ねじ	1
9721-0120-13	E-ring	E リング	3
9721-0150-13	E-ring	E リング	1
9791-1628-40	Washer	薄ワッシャー	1

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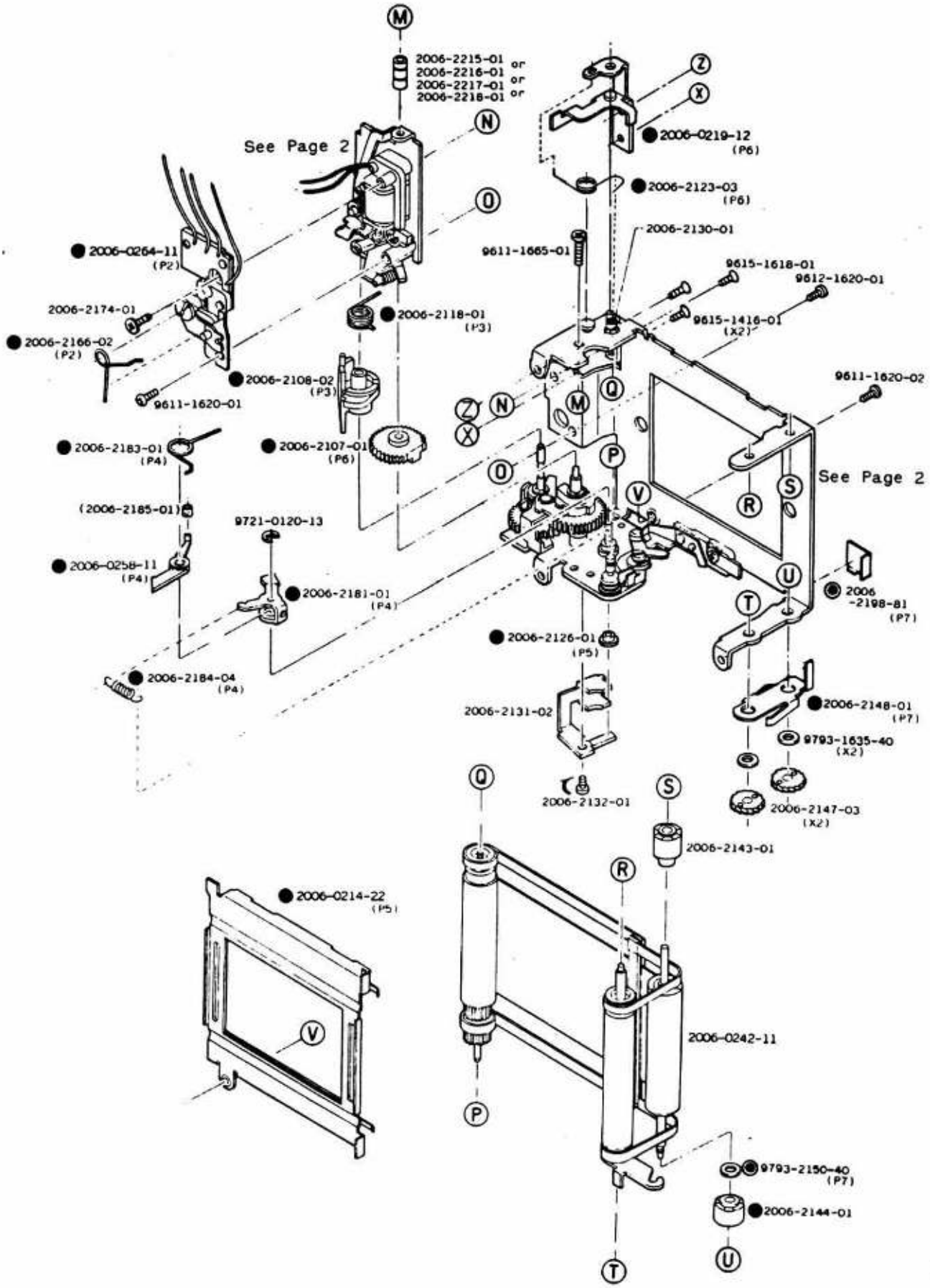
2006-2106	2
2006-2107	1
2006-2108	1
2006-2114	2
2006-2118	1
2006-2123	1
2006-2126	1
2006-2130	1
2006-2131	1
2006-2132	1
2006-2143	1
2006-2144	1
2006-2147	1
2006-2148	1
2006-2149	2
2006-2150	2
2006-2157	2
2006-2158	2
2006-2166	1
2006-2168	2
2006-2173	2
2006-2174	1
2006-2176	2
2006-2181	1
2006-2183	1
2006-2184	1,2
2006-2185	1
2006-2189	2
2006-2191	2
2006-2198	1
2006-2204	2
2006-2214	2
2006-2215	1
2006-2216	1
2006-2217	1
2006-2218	1
Screw	
9611-1620-01	1
9611-1620-02	1
9611-1665-01	1
9612-1620-01	1,2
9612-1645-01	2
9615-1416-01	1
9615-1420-01	2
9615-1618-01	1
E-ring	
9721-0120-13	1,2
9721-0150-00	2
9721-0150-13	2
Washer	
9791-1628-40	2
9793-1635-40	1
9793-2150-40	1

Type 2


2006-2215-01 or
2006-2216-01 or
2006-2217-01 or
2006-2218-01
See Page 2
2006-0219-12 (P6)
2006-2123-03 (P6)
2006-2130-01
9611-1665-01
9615-1618-01
9612-1620-01
9615-1416-01 (X2)
2006-0264-11 (P2)
2006-2174-01
2006-2166-02 (P2)
9611-1620-01
2006-2118-01 (P3)
2006-2108-02 (P3)
9611-1620-02
2006-2183-01 (P4)
2006-2107-01 (P6)
See Page 2
(2006-2185-01)
9721-0120-13
2006-0258-11 (P4)
2006-2181-01 (P4)
2006-2198-81 (P7)
2006-2126-01 (P5)
2006-2184-04 (P4)
2006-2131-02
2006-2148-01 (P7)
9793-1635-40 (X2)
2006-2132-01
2006-2147-03 (X2)
2006-2143-01
2006-0214-22 (P5)
2006-0242-11
9793-2150-40 (P7)
2006-2144-01

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Part No.	Part Name		Qty
2006-0214-22	Shutter cover set	シャッターカバー板セット	1
2006-0219-12	2nd. curtain stop lever set	2幕係止レバーセット	1
2006-0242-11	Shutter curtain set	シャッター幕セット	1
2006-0258-11	1st. curtain brake lever set	1幕ブレーキレバーセット	1
(2006-2185-01)	Brake lever isolation collar	1幕ブレーキ絶縁カラー	1
2006-0264-11	Trigger base plate set	トリガー台板セット	1
2006-2107-01	2nd. curtain shutter gear	2幕シャッターギヤー	1
2006-2108-02	Control cam	制御カム	1
2006-2118-01	Control cam operation spring	制御カム駆動SP	1
2006-2123-03	2nd. curtain stop lever spring	2幕係止レバーSP	1
2006-2126-01	Curtain shaft receiver-B	幕軸受B	1
2006-2130-01	Adjusting screw	幕軸調整ビス	1
2006-2131-02	Curtain ribbon guide plate	幕リボンガイド板	1
2006-2132-01	Ribbon guide plate screw	幕リボンガイド板止めビス	1
2006-2143-01	2nd. curtain roller-A	2幕ローラーA	1
2006-2144-01	2nd. curtain roller-B	2幕ローラーB	1
2006-2147-03	Ratchet	幕スプリング筒軸止めラチエット	2
2006-2148-01	Ratchet stop spring	ラチエット止めバネ	1
2006-2166-02	Trigger contact	トリガー接片	1
2006-2174-01	Screw	トリガー台板締付ねじ	1
2006-2181-01	2nd. curtain brake lever	2幕ブレーキレバー	1
2006-2183-01	1st. curtain brake spring-B	1幕ブレーキSP-B	1
2006-2184-04	2nd. curtain brake spring	2幕ブレーキSP	1
2006-2198-81	Light shield plate	幕SP筒遮光板	1
2006-2215-01	Adjusting collar-A	制御板取付カラーA	O-1
2006-2216-01	Adjusting collar-B	制御板取付カラーB	O-1
2006-2217-01	Adjusting collar-C	制御板取付カラーC	O-1
2006-2218-01	Adjusting collar-D	制御板取付カラーD	O-1
9611-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9611-1620-02	Phillips type screw	十字穴付なべ頭小ねじ	1
9611-1665-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9615-1416-01	Phillips type screw	十字穴付皿頭小ねじ	2
9615-1618-01	Phillips type screw	十字穴付皿頭小ねじ	1
9721-0120-13	E-ring	E リング	1
9793-1635-40	Washer	薄ワッシャー	2
9793-2150-40	Washer	薄ワッシャー	1

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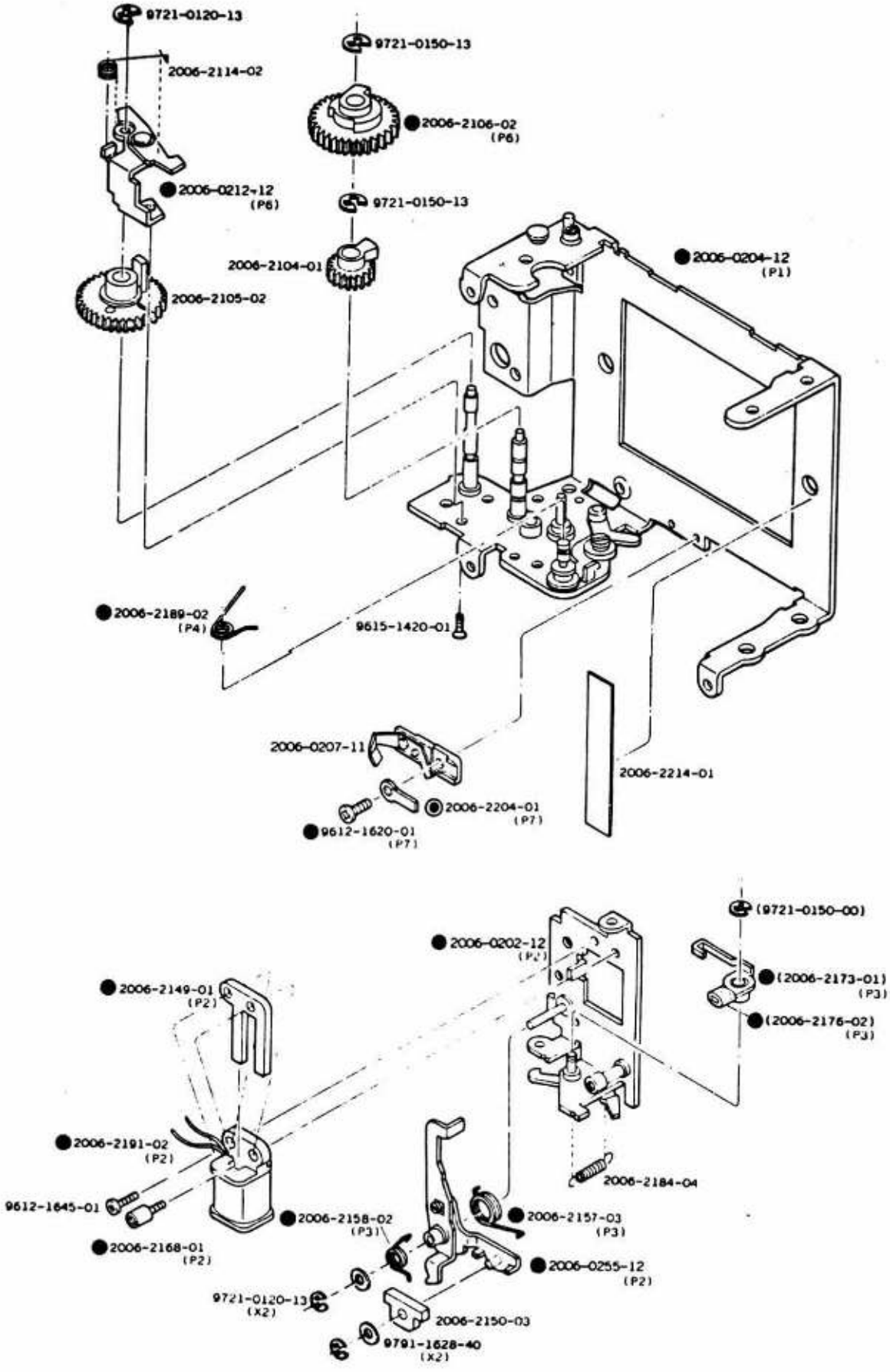
Type 2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2006-2114-02
9721-0150-13
2006-2106-02 (P6)
2006-0212-12 (P6)
9721-0150-13
2006-2104-01
2006-2105-02
2006-0204-12 (P1)
2006-2189-02 (P4)
9615-1420-01
2006-0207-11
2006-2214-01
2006-2204-01 (P7)
9612-1620-01 (P7)
(9721-0150-00)
2006-0202-12 (P2)
(2006-2173-01) (P3)
(2006-2176-02) (P3)
2006-2149-01 (P2)
2006-2191-02 (P2)
2006-2184-04
9612-1645-01
2006-2158-02 (P3)
2006-2157-03 (P3)
2006-2168-01 (P2)
2006-0255-12 (P2)
9721-0120-13 (X2)
2006-2150-03
9791-1628-40 (X2)

Part No.	Part Name		Qty
2006-0202-12	Control base plate set	制御台板セット	1
(2006-2173-01)	Trigger contact operation lever	トリガー接片作動レバー	1
(2006-2176-02)	Operation lever isolation tube	トリガー接片作動レバー絶縁チューブ	1
(9721-0150-00)	E-ring	E リング	1
2006-0204-12	Shutter base plate set	シャッター台板セット	1
2006-0207-11	X contact plate set	X 接片セット	1
2006-0212-12	1st. curtain stop lever set	1幕係止レバーセット	1
2006-0255-12	2nd. curtain release lever set	2幕解除レバーセット	1
2006-2104-01	Charge gear-B	チャージギヤーB	1
2006-2105-02	Charge gear-A	チャージギヤーA	1
2006-2106-02	1st. curtain shutter gear	1幕シャッターギヤー	1
2006-2114-02	1st. curtain stop lever spring	1幕係止レバーSP	1
2006-2149-01	shutter magnet core	シャッターマグネット鉄芯	1
2006-2150-03	Shutter magnet	シャッターマグネット吸着片	1
2006-2157-03	2nd. curtain release lever spring	2幕解除レバーSP	1
2006-2158-02	Over charge spring	吸着片オーバーチャージSP	1
2006-2168-01	Trigger base plate screw	トリガー台板取付ねじ	1
2006-2184-04	2nd. curtain brake spring	2幕ブレーキSP	1
2006-2189-02	X lever spring	X レバーSP	1
2006-2191-02	Shutter magnet bobbin	シャッターマグネットボビン	1
2006-2204-01	X earth plate	X アース板	1
2006-2214-01	Tape (per roll)	幕フチ金保護テープ	1
9612-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1645-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9615-1420-01	Phillips type screw	十字穴付皿頭小ねじ	1
9721-0120-13	E-ring	E リング	3
9721-0150-13	E-ring	E リング	2
9791-1628-40	Washer	薄ワッシャー	2

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Part No.	Page
2006-0202	2
2006-0204	2
2006-0207	2
2006-0212	1
2006-0214	1
2006-0219	1
2006-0242	1
2006-0255	2
2006-0258	2
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2006-0264	1
2006-2104	2
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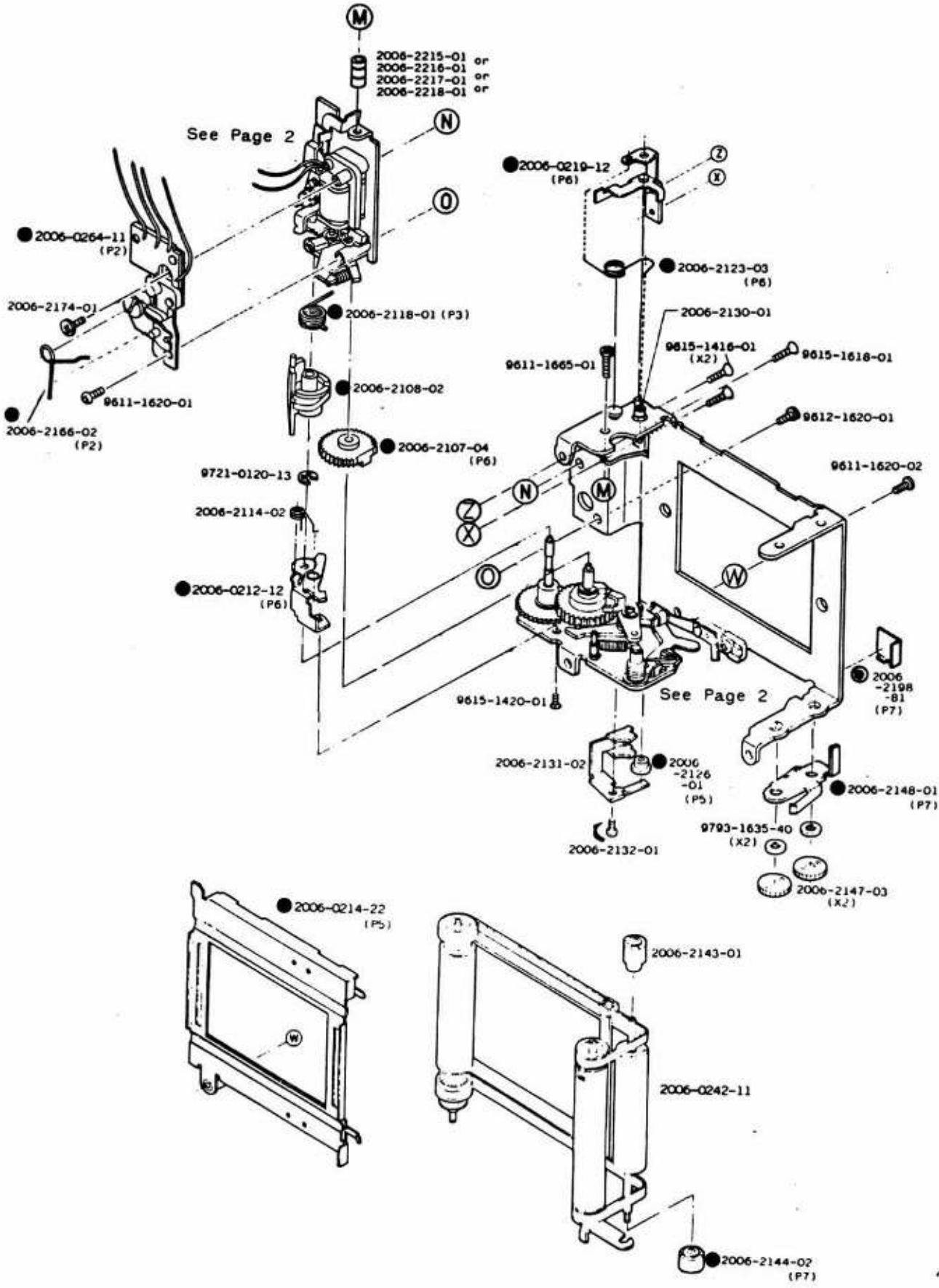
2006-2149	2
2006-2150	2
2006-2157	2
2006-2158	2
2006-2166	1
2006-2168	2
2006-2173	2
2006-2174	1
2006-2176	2
2006-2183	2
2006-2184	2
2006-2185	2
2006-2189	2
2006-2191	2
2006-2192	2
2006-2196	2
2006-2197	2
2006-2198	1
2006-2214	2
2006-2215	1
2006-2216	1
2006-2217	1
2006-2218	1
2006-2221	2
Screw	
9611-1620-01	1
9611-1620-02	1
9611-1665-01	1
9612-1618-01	2
9612-1620-01	1
9612-1645-01	2
9615-1416-01	1
9615-1420-01	1
9615-1618-01	1
E-ring	
9721-0120-13	1,2
9721-0150-00	2
9721-0150-13	2
Washer	
9791-1628-40	2
9793-1635-40	1

Type 3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2006-2216-01 or
2006-2217-01 or
2006-2218-01
See Page 2
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2006-2174-01
9611-1620-01
2006-2166-02 (P2)
2006-2118-01 (P3)
2006-2108-02
2006-2107-04 (P6)
9721-0120-13
2006-2114-02
2006-0212-12 (P6)
2006-0219-12 (P6)
2006-2123-03 (P6)
2006-2130-01
9611-1665-01
9615-1416-01 (X2)
9615-1618-01
9612-1620-01
9611-1620-02
9615-1420-01
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2006-2198-81 (P7)
2006-2131-02
2006-2126-01 (P5)
2006-2148-01 (P7)
9703-1635-40 (X2)
2006-2147-03 (X2)
2006-2132-01
2006-0214-22 (P5)
2006-2143-01
2006-0242-11
2006-2144-02 (P7)

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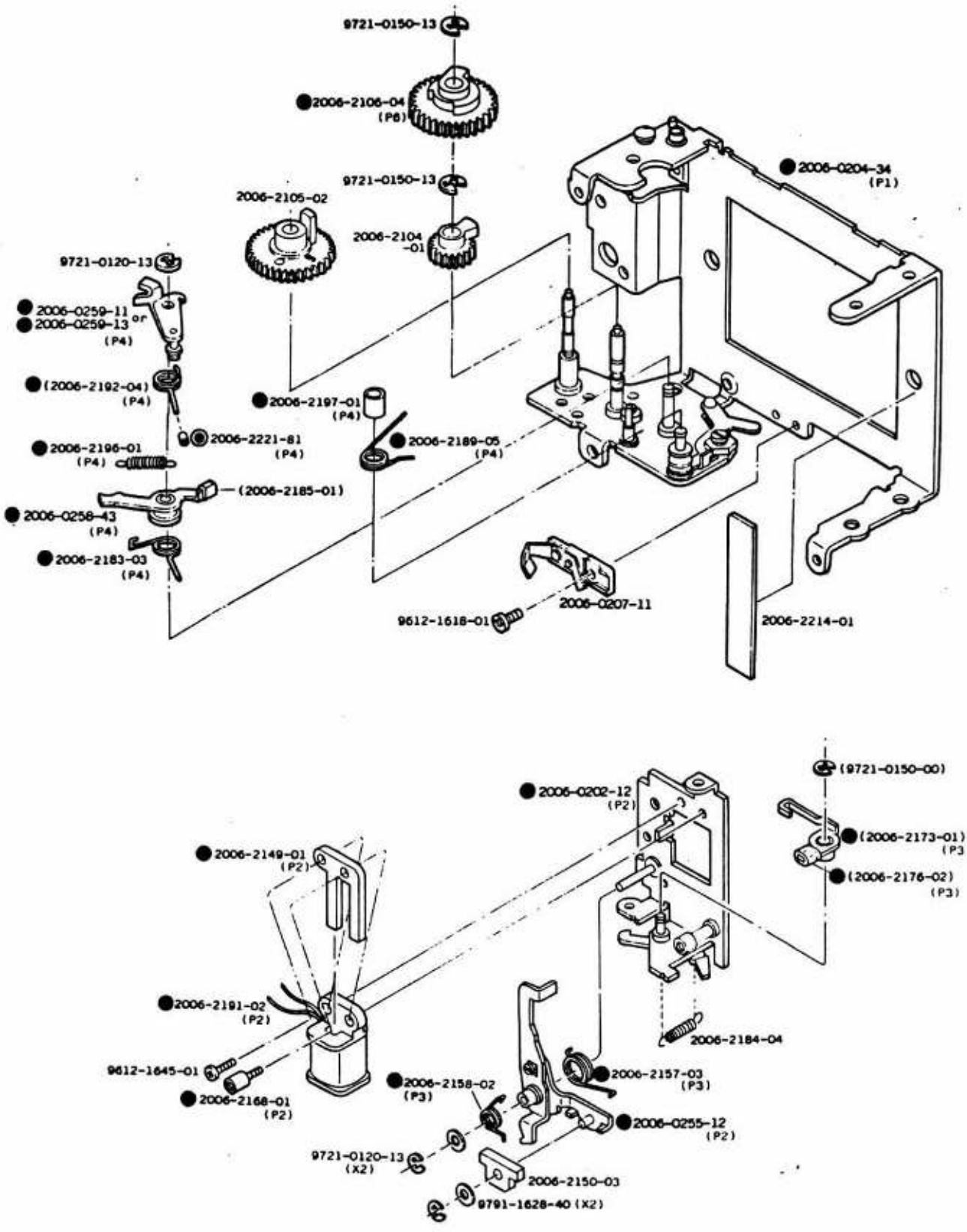
Part No.	Part Name		Qty
2006-0212-12	1st. curtain stop lever set	1幕係止レバーセット	1
2006-0214-22	Shutter cover set	シャッターカバー板セット	1
2006-0219-12	2nd. curtain stop lever set	2幕係止レバーセット	1
2006-0242-11	Shutter curtain set	シャッター幕セット	1
2006-0264-11	Trigger base plate set	トリガー台板セット	1
2006-2107-04	2nd. curtain shutter gear	2幕シャッターギヤー	1
2006-2108-02	Control cam	制御カム	1
2006-2114-02	1st. curtain stop lever spring	1幕係止レバーSP	1
2006-2118-01	Control cam operation spring	制御カム駆動SP	1
2006-2123-03	2nd. curtain stop lever spring	2幕係止レバーSP	1
2006-2126-01	Curtain shaft receiver-B	幕軸受B	1
2006-2130-01	Adjusting screw	幕軸調整ビス	1
2006-2131-02	Curtain ribbon guide plate	幕リボンガイド板	1
2006-2132-01	Ribbon guide plate screw	幕リボンガイド板止めビス	1
2006-2143-01	2nd. curtain roller-A	2幕ローラーA	1
2006-2144-02	2nd. curtain roller-B	2幕ローラーB	1
2006-2147-03	Ratchet	幕スプリング筒軸止めラチエット	2
2006-2148-01	Ratchet stop spring	ラチエット止めバネ	1
2006-2166-02	trigger contact	トリガー接片	1
2006-2174-01	Screw	トリガー台板締付ねじ	1
2006-2198-81	Light shield plate	幕SP筒遮光板	1
2006-2215-01	Adjusting collar-A	制御板取付カラーA	0-1
2006-2216-01	Adjusting collar-B	制御板取付カラーB	0-1
2006-2217-01	Adjusting collar-C	制御板取付カラーC	0-1
2006-2218-01	Adjusting collar-D	制御板取付カラーD	0-1
9611-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9611-1620-02	Phillips type screw	十字穴付なべ頭小ねじ	1
9611-1665-01	Phillips tyep screw	十字穴付なべ頭小ねじ	1
9612-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9615-1416-01	Phillips type screw	十字穴付皿頭小ねじ	2
9615-1420-01	Phillips type screw	十字穴付皿頭小ねじ	1
9615-1618-01	Phillips type screw	十字穴付皿頭小ねじ	1
9721-0120-13	E-ring	Eリング	1
9793-1635-40	Washer	薄ワッシャー	2

Type 3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2006-2106-04 (P6)
9721-0150-13
2006-2105-02
2006-2104-01
2006-0204-34 (P1)
9721-0120-13
2006-0259-11 or 2006-0259-13 (P4)
(2006-2192-04) (P4)
2006-2197-01 (P4)
2006-2221-81 (P4)
2006-2189-05 (P4)
2006-2196-01 (P4)
(2006-2185-01)
2006-0258-43 (P4)
2006-2183-03 (P4)
2006-0207-11
9612-1618-01
2006-2214-01
(9721-0150-00)
2006-0202-12 (P2)
(2006-2173-01) (P3)
(2006-2176-02) (P3)
2006-2149-01 (P2)
2006-2191-02 (P2)
2006-2184-04
9612-1645-01
2006-2168-01 (P2)
2006-2158-02 (P3)
2006-2157-03 (P3)
2006-0255-12 (P2)
9721-0120-13 (X2)
2006-2150-03
9791-1628-40 (X2)

Part No	Part Name		Qty
2006-0202-12	Control base plate set	制御台板セット	1
(2006-2173-01)	Trigger contact operation lever	トリガー接片作動レバー	1
(2006-2176-02)	Operation lever isolation tube	トルガー接片作動レバー絶縁チューブ	1
(9721-0150-00)	E-ring	E リング	1
2006-0204-34	Shutter base plate set	シャッター台板セット	1
2006-0207-11	X contact plate set	X 接片セット	1
2006-0255-12	Second curtain release lever set	2幕解除レバーセット	1
2006-0258-43	1st. curtain brake lever set	1幕ブレーキレバーセット	1
(2006-2185-01)	Brake lever isolation collar	1幕ブレーキ絶縁カラー	1
2006-0259-11	2nd. curtain brake lever set	2幕ブレーキレバーセット	1
(2006-2192-04)	2nd. curtain brake spring	2幕ブレーキSP	1
2006-2104-01	Charge gear-B	チャージギヤーB	1
2006-2105-02	Charge gear-A	チャージギヤーA	1
2006-2106-04	1st. curtain shutter gear	1幕シャッターギヤー	1
2006-2149-01	Shutter magnet core	シャッターマグネット鉄芯	1
2006-2150-03	Shutter magnet	シャッターマグネット吸着片	1
2006-2157-03	2nd. curtain release lever spring	2幕解除レバーSP	1
2006-2158-02	Over charge spring	吸着片オーバチャージSP	1
2006-2168-01	Trigger base plate screw	トリガー台板取付ねじ	1
2006-2183-03	1st. curtain brake spring-B	1幕ブレーキSP—B	1
2006-2184-04	2nd. curtain brake spring	2幕ブレーキSP	1
2006-2189-05	X lever spring	X レバーSP	1
2006-2191-02	Shutter magnet bobbin	シャッターマグネットボビン	1
2006-2196-01	2nd. curtain brake return spring	2幕ブレーシ戻しSP	1
2006-2197-01	Brake lever axis collar	2幕ブレーキ消音カラー	1
2006-2214-01	Tape (per roll)	幕フチ金保護テープ	1
2006-2221-81	Spring tube	2幕ブレーキSP補強チューブ	1
9612-1618-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1645-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9721-0120-13	E-ring	E リング	3
9721-0150-13	E-ring	E リング	2
9791-1628-40	Washer	薄ワッシャー	2

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Part No.	Page
2006-0207	2
2006-0209	2
2006-0211	2
2006-0215	1
2006-0218	1
2006-0222	1
2006-0229	1
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Screw	
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9615-1416-02	1
9615-1420-01	1
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E-ring	
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Washer	
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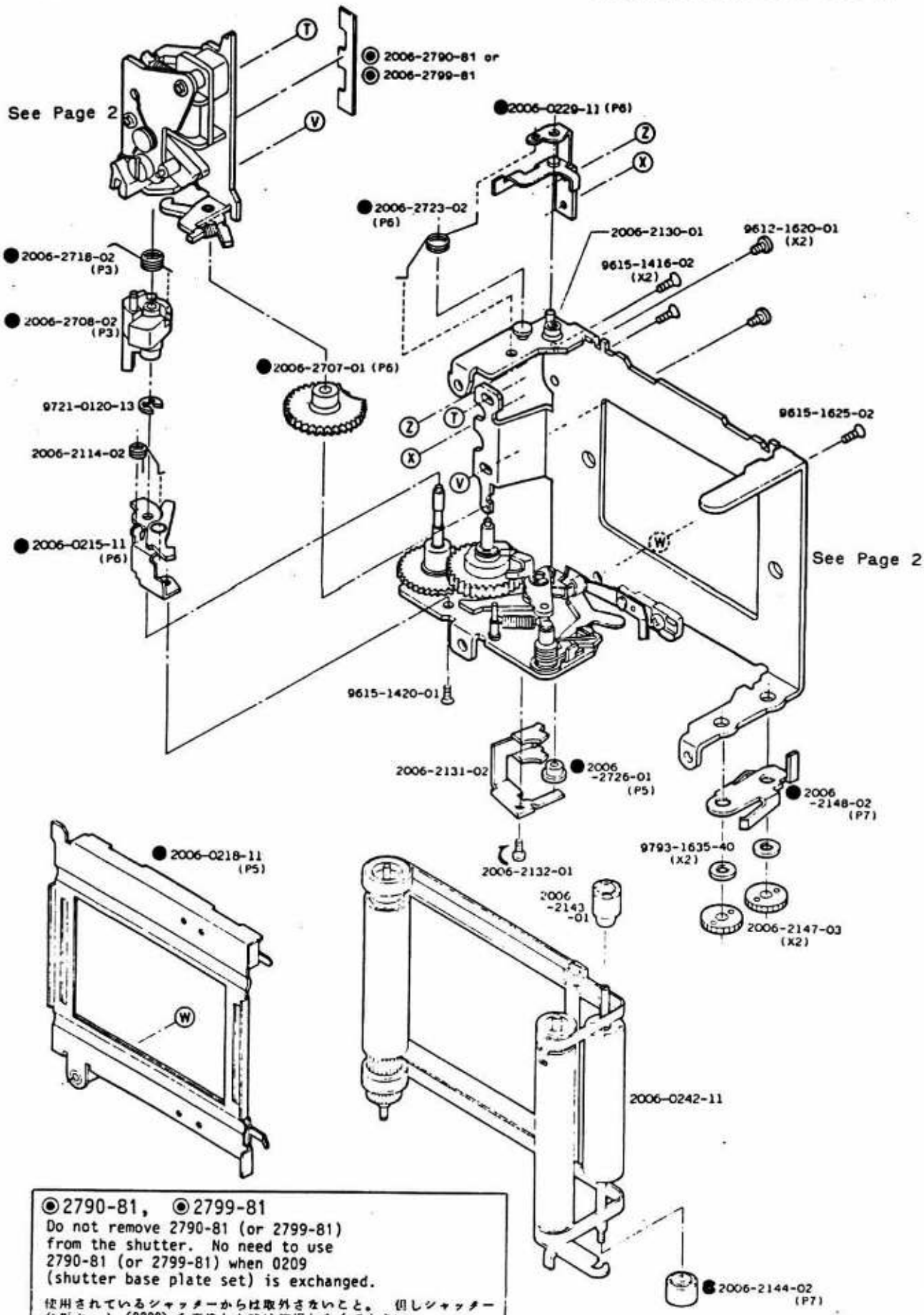
Type 4

Assy. Part No. 2006-0222-11

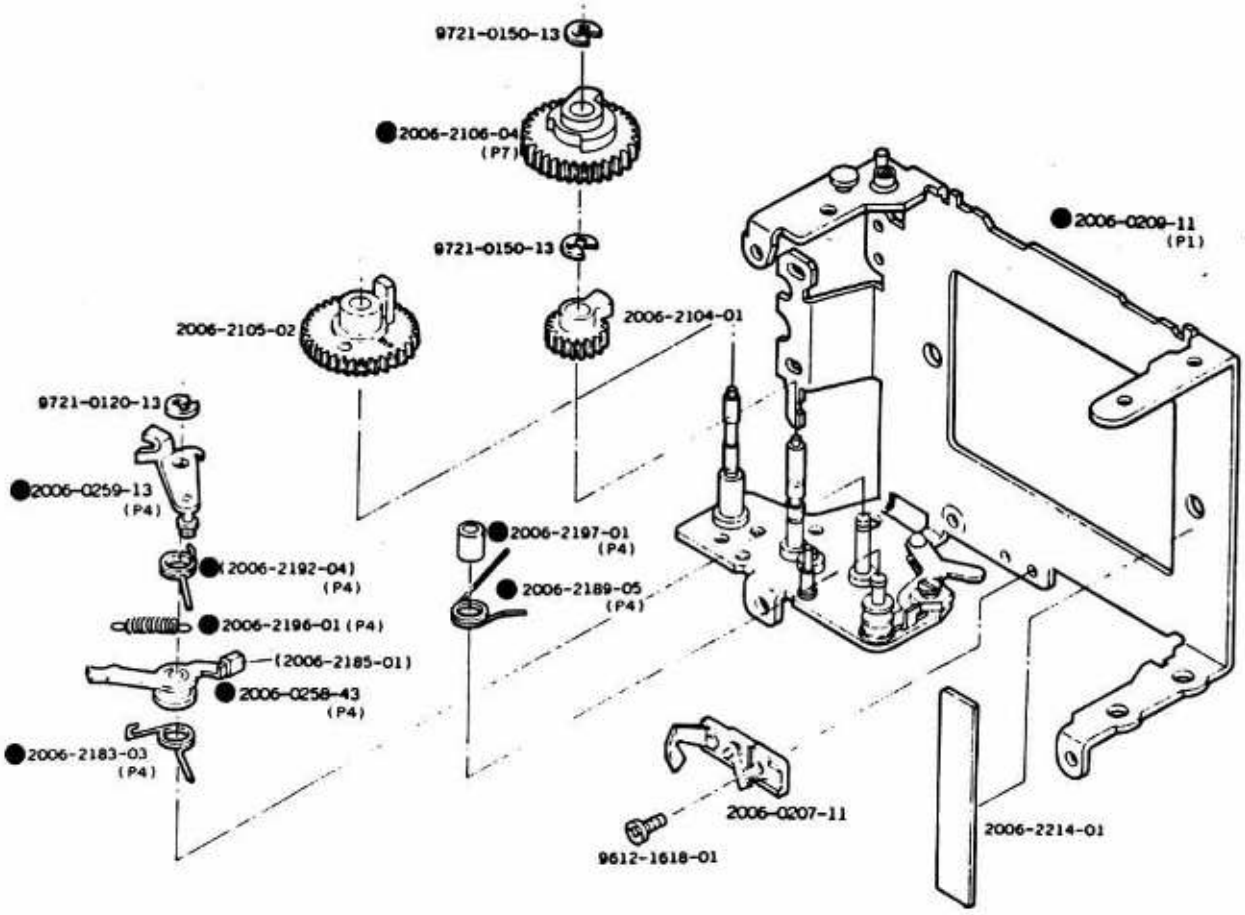


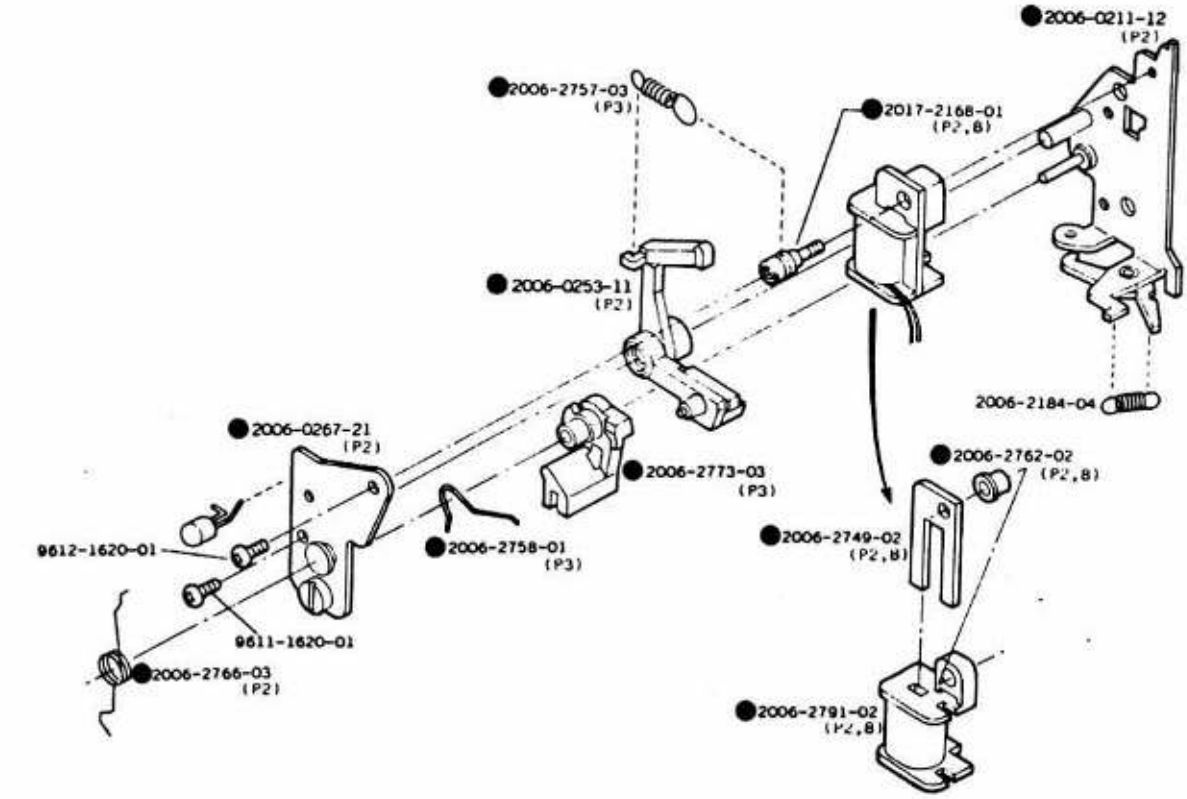
◉2790-81, ◉2799-81
Do not remove 2790-81 (or 2799-81) from the shutter. No need to use 2790-81 (or 2799-81) when 0209 (shutter base plate set) is exchanged.

使用されているシャッターからは取外さないこと。 但しシャッター台板セット (0209) を交換した時は使用しなくてもよい。

Part No.	Part Name		Qty
2006-0222-11	Shutter complete set	シャッターブロック	1
2006-0215-11	1st. curtain stop lever set	1幕係止レバーセット	1
2006-0218-11	Shutter cover set	シャッターカバー板セット	1
2006-0229-11	2nd. curtain stop lever set	2幕係止レバーセット	1
2006-0242-11	Shutter curtain set	シャッター幕セット	1
2006-2114-02	1st. curtain stop lever spring	1幕係止レバースプリング	1
2006-2130-01	Adjusting screw	幕軸調整ビス	1
2006-2131-02	Curtain ribbon guide plate	幕リボンガイド板	1
2006-2132-01	Ribbon guide plate screw	幕リボンガイド板止めビス	1
2006-2143-01	2nd. curtain roller-A	2幕ローラーA	1
2006-2144-02	2nd. curtain roller-B	2幕ローラーB	1
2006-2147-03	Ratchet	幕SP筒軸止めラチエット	2
2006-2148-02	Ratchet stop spring	ラチエット止めバネ	1
2006-2707-01	2nd. curtain shutter gear	2幕シャッターギヤー	1
2006-2708-02	Control cam	制御カム	1
2006-2718-02	Control cam operation spring	制御カム駆動SP	1
2006-2723-02	2nd. curtain stop lever spring	2幕係止レバーSP	1
2006-2726-01	Curtain shaft receiver-B	幕軸受B	1
2006-2790-81	Adjusting washer (0.1mm)		0-1
2006-2799-81	Adjusting washer (0.05mm)		0-1
9612-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	2
9615-1416-02	Phillips type screw	十字穴付皿頭小ねじ	2
9615-1420-01	Phillips type screw	十字穴付皿頭小ねじ	1
9615-1625-02	Phillips type screw	十字穴付皿頭小ねじ	1
9721-0120-13	E-ring	E リング	1
9793-1635-40	Washer	薄ワッシャー	2

Type 4


9721-0150-13
2006-2106-04 (P7)
9721-0150-13
2006-2105-02
2006-2104-01
2006-0209-11 (P1)
9721-0120-13
2006-0259-13 (P4)
2006-2192-04 (P4)
2006-2196-01 (P4)
(2006-2185-01)
2006-0258-43 (P4)
2006-2183-03 (P4)
2006-2197-01 (P4)
2006-2189-05 (P4)
2006-0207-11
9612-1618-01
2006-2214-01


2006-0211-12 (P2)
2006-2757-03 (P3)
2017-2168-01 (P2,8)
2006-0253-11 (P2)
2006-2184-04
2006-0267-21 (P2)
2006-2773-03 (P3)
2006-2762-02 (P2,8)
9612-1620-01
2006-2758-01 (P3)
2006-2749-02 (P2,8)
9611-1620-01
2006-2766-03 (P2)
2006-2791-02 (P2,8)

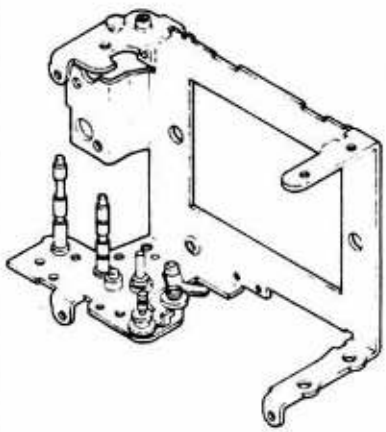
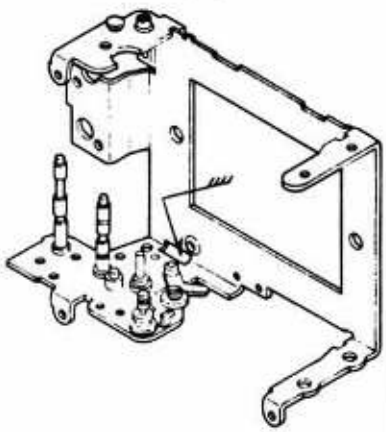
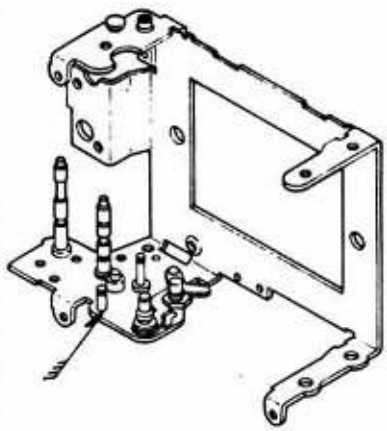
Part No.	Part Name		Qty
2006-0207-11	X contact plate set	X 接片セット	1
2006-0209-11	Shutter base plate set	シャッター台板セット	1
2006-0211-12	Control base plate set	制御台板セット	1
2006-0253-11	2nd. curtain release lever set	2幕解除レバーセット	1
2006-0258-43	1st. curtain brake lever set	1幕ブレーキレバーセット	1
(2006-2185-01)	Brake lever isolation collar	1幕ブレーキ絶縁カラー	1
2006-0259-13	2nd. curtain brake lever set	2幕ブレーキレバーセット	1
(2006-2192-04)	2nd. curtain brake spring	2幕ブレーキSP	1
2006-0267-21	Winding base plate set	Mg. 配線基板セット	1
2006-2104-01	Charge gear-B	チャージギヤーB	1
2006-2105-02	Charge gear-A	チャージギヤーA	1
2006-2106-04	1st. curtain shutter gear	1幕シャッターギヤー	1
2017-2168-01	Trigger base plate screw	トリガー台板取付ねじ	1
2006-2183-03	1st. curtain brake spring-B	1幕ブレーキSP-B	1
2006-2184-04	2nd. curtain brake spring	2幕ブレーキSP	1
2006-2189-05	X lever spring	X レバーSP	1
2006-2196-01	2nd. curtain brake return spring	2幕ブレーキ戻しSP	1
2006-2197-01	Brake lever axis collar	2幕ブレーキ消音カラー	1
2006-2214-01	Tape (per roll)	幕フチ金保護テープ	1
2006-2749-02	Shutter magnet core	シャッターマグネット鉄芯	1
2006-2757-03	2nd. curtain release lever spring	2幕解除レバーSP	1
2006-2758-01	Over charge spring	吸着片オーバーチャージSP	1
2006-2762-02	Magnet collar	マグネット取付カラー	1
2006-2766-03	Trigger contact	トリガー接片	1
2006-2773-03	Trigger contact operation lever	トリガー接片作動レバー	1
2006-2791-02	Shutter magnet bobbin	シャッターマグネットボビン	1
9611-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1618-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9721-0120-13	E-ring	E リング	1
9721-0150-13	E-ring	E リング	2

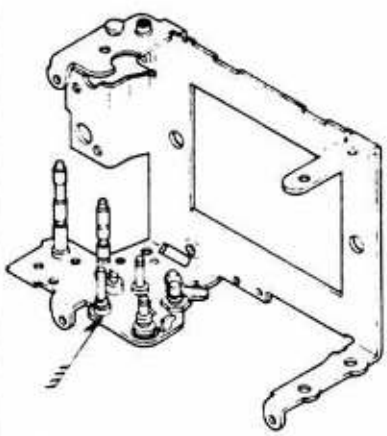
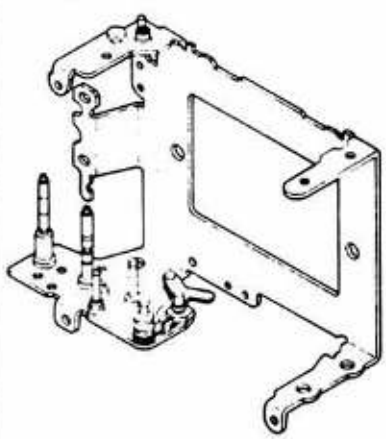
Shutter Parts List Part Ⅱ

This parts list is for XG type shutter parts, in which modifications of parts with ● or ◉ mark are detailed.
1. Indications Type 1~4 are used for parts which differ with type of shutter unit, and there is no interchangeability between types.
2. Parts indicated by Type A~B are interchangeable with other types only when they come in a set with the relative parts of each type.

このパーツリストは，XG系シャッターパーツリストで，●印，又は◉印のついている部品の変更内容等を記載しています。
1．シャッターユニットのタイプによって異なる部品はType 1～Type 4と表示し，各タイプ間の互換性はありません
2．Type A～Bと表示している部品は，関連部品（表の縦の列）とセットであれば他のタイプと交換可能です。

1．Shutter base plate / シャッター台板

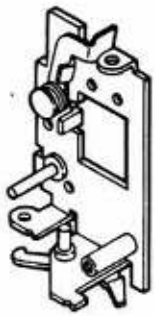
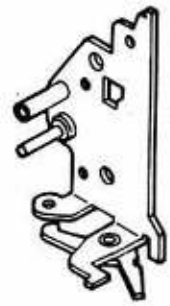
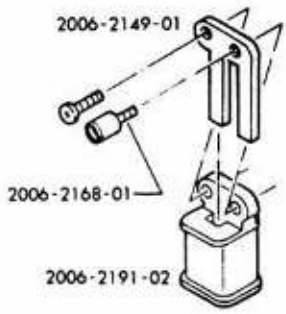
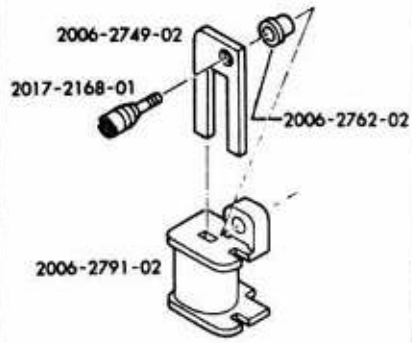
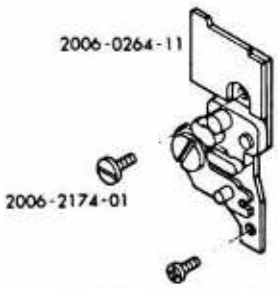
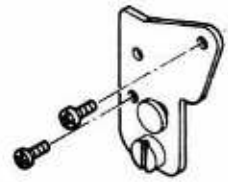
Type 1	Type 2, 2′	Type 3
2006-0204-11	2006-0204-12 (X)	2006-0204-33 (X)
		

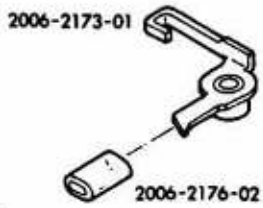
Type 3′	Type 4
2006-0204-34	2006-0209-11
	

2006-0204 | 2006-0209 | Shutter base plate set シャッター台板セット

2. Control base plate / 制御台板

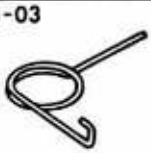
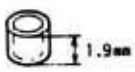
- For Type 2′, refer to P. 9.
- Type 2′ についてはP. 9 を参照して下さい。

Type 1	Type 2, 3, 3′	Type 4
2006-0202-11 	2006-0202-12	2006-0211-12 
2006-0255-11	2006-0255-12	2006-0253-11
	Type 1 is used. Type 1 を使用	 • See Page 8
	Type 1 is used. Type 1 を使用	2006-0267-21 
2006-2166-02	Type 1 is used. Type 1 を使用	2006-2766-03

Type 1	Type 2, 3, 3′	Type 4
2006-2173-01 	Type 1 is used. Type 1 を使用	2066-2773-03
2006-2108-02 	Type 1 is used. Type 1 を使用	2006-2708-02
2006-2118-01 	Type 1 is used. Type 1 を使用	2006-2718-02
2006-2158-01 	2006-2158-02 	2006-2758-01
2006-2157-02 	2006-2157-03 	2006-2757-03

2006-0202, 0211	Control base plate set 制御台板セット
2006-0255, 0253	2nd. curtain release lever set 2幕解除レバーセット
2006-0264	Trigger base plate set トリガー台板セット
2006-0267	Wiring base plate set Mg.配線基板セット
2006-2108, 2708	Control cam 制御カム
2006-2118, 2718	Control cam operation spring 制御カム駆動SP
2006-2149, 2749	Shutter magnet core シャッターマグネット鉄芯
2006-2157, 2757	2nd. curtain release lever spring 2幕解除レバーSP
2006-2158, 2758	Over charge spring 吸着片オーバーチャージSP
2006-2166, 2766	Trigger contact トリガー接片
2006-2168 2017-2168	Trigger base plate screw トリガー台板取付ねじ
2006-2173, 2773	Trigger contact operation lever トリガー接片作動レバー
2006-2174	Screw トリガー台板締付ねじ
2006-2191, 2791	Shutter magnet bobbin シャッターマグネットボビン
2006-2762	Magnet collar マグネット取付カラー

3. 1st and 2nd curtain brake / 1, 2幕ブレーキ

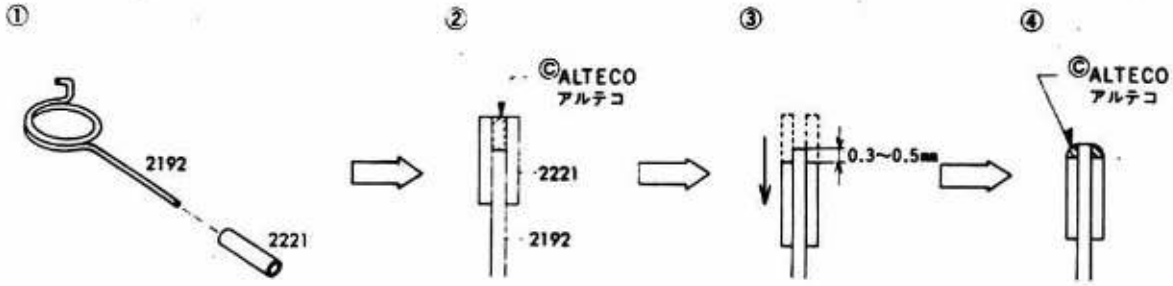
Type 1, 2, 2′	Type 3	Type 3′, 4
2006-0258-11	2006-0258-43	Type 3 is used. Type 3 を使用
2006-2181-01	2006-0259-11	2006-0259-13
2006-2183-01	2006-2183-03 	Type 3 is used. Type 3 を使用
2006-2184-04	2006-2192-04	Type 3 is used. Type 3 を使用
Not used. 使用しない	2006-2196-01	Type 3 is used. Type 3 を使用
2006-2189-02	2006-2189-05	Type 3 is used. Type 3 を使用
Not used. 使用しない	2006-2197-01 	Type 3 is used. Type 3 を使用
Not used. 使用しない	2006-2221-81 ● See Page 5	Not used. 使用しない

2006-0258 1st. curtain brake lever set 1幕ブレーキレバーセット
2006-0259 2nd. curtain brake lever set 2幕ブレーキレバーセット
2006-2181 2nd. curtain brake lever 2幕ブレーキレバー
2006-2183 1st. curtain brake lever spring-B 1幕ブレーキSP-B
2006-2184 2nd. curtain brake spring 2幕ブレーキSP
2006-2189 X lever spring Xレバースプリング
2006-2192 2nd. curtain brake spring 2幕ブレーキSP
2006-2196 2nd. curtain brake return spring 2幕ブレーキ戻しSP
2006-2197 Brake lever axis collar 2幕ブレーキ消音カラー
2006-2221 Spring tube 2幕ブレーキSP補強チューブ

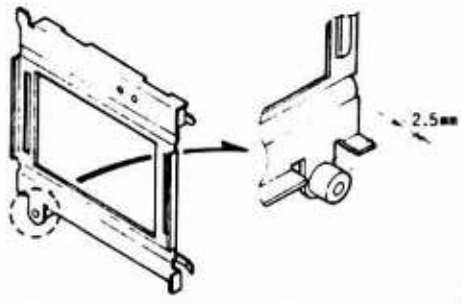
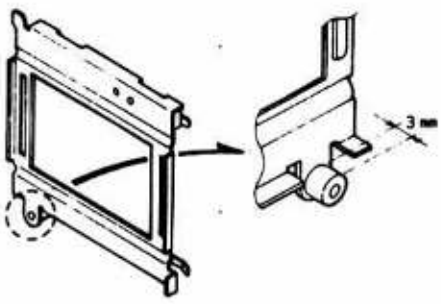
■Spring tube (2006-2221) / 2幕ブレーキSP補強チューブ(2006-2221)について

To prevent breakage of 2nd curtain brake spring, tube (2221) is set to 2nd curtain brake spring (2192) for Type 3 shutter in the course of production. When disassembling Type 3 shutter with no the tube, set the tube by the method shown below.
(The tube is not needed for Type 3′ and 4 shutters because the 2nd curtain brake lever set (0259) has been modified in shape.)

Type 3シャッターの途中より2幕ブレーキSPの折れ防止として、チューブ (2221) が2幕ブレーキSP (2192) にセットされています。チューブの取付いていないType 3シャッターの分解時は、下図の要領でチューブを取付けて下さい。
(Type 3′、4シャッターでは2幕ブレーキレバーセット (0259) の形状が変更されており、チューブは不要です)



4. Shutter cover plate / シャッターカバー板

Type 1, 2, 2′, 3, 3′	Type 4
2006-0214-22	2006-0218-11
	

5. Curtain shaft receiver-B / 幕軸受B

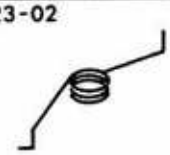
Type 1, 2, 2′, 3, 3′	Type 4
2006-2126-01	2006-2726-01

2006-0214, 0218 Shutter cover set シャッターカバー板セット
2006-2126, 2726 Curtain shaft receiver-B 幕軸受B

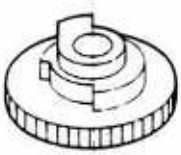
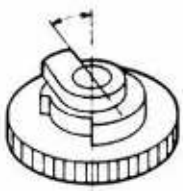
6. 1st curtain stop lever / 1幕係止レバー

Type 1, 2, 2', 3, 3'	Type 4
2006-0212-12	2006-0215-11

7. 2nd curtain stop lever / 2幕係止レバー

Type 1	Type 2, 2', 3, 3'	Type 4
2006-0219-11	2006-0219-12	2006-0229-11
2006-2123-01	2006-2123-03	2006-2723-02 

8. Shutter gear / シャッターギヤー

Type 1, 2, 2'	Type 3, 3'	Type 4
2006-2106-02 	2006-2106-04 	Type 3 is used. Type 3 を使用
2006-2107-01	2006-2107-04	2006-2707-01

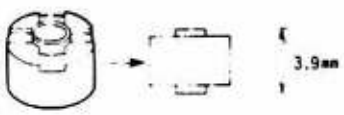
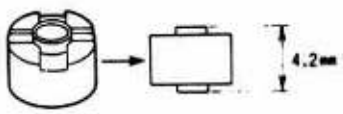
2006-0212, 0215	1st. curtain stop lever set	1幕係止レバーセット
2006-0219, 0229	2nd. curtain stop lever set	2幕係止レバーセット
2006-2106	1st. curtain shutter gear	1幕シャッターギヤー
2006-2107, 2707	2nd. curtain shutter gear	2幕シャッターギヤー
2006-2123, 2723	2nd. curtain stop lever spring	2幕係止レバースプリング

9. Ratchet stop spring / ラチエット止め板

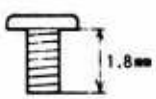
- 2198-81 had been used for prevention of light leakage before 2148 was modified to Type B.
- 2198-81は2148がType Bに変更されるまで，光線もれの防止用に使用されていました。

Type A	Type B
2006-2148-01	2006-2148-02
2006-2198-81	Not used. 使用しない

10. 2nd curtain roller-B / 2幕ローラーB

Type A	Type B
9793-2150-40 (Washer)	Not used. 使用しない
2006-2144-01 	2006-2144-02 

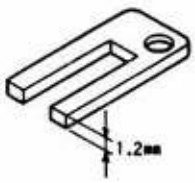
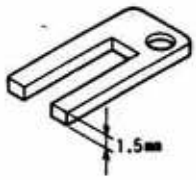
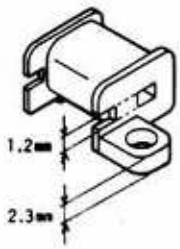
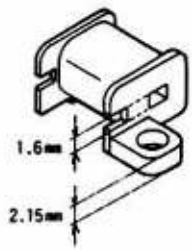
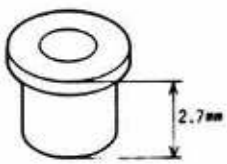
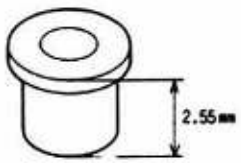
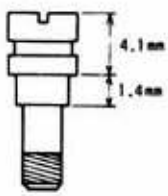
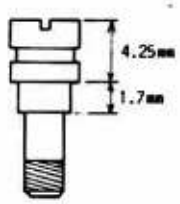
11. X earth plate / Xアース板

Type A	Type B
2006-2204-01	Not used. 使用しない
9612-1620-01 (Screw) (For 2201, 0207 fitting.) (2204, 0207取付用)	9612-1618-01 (Screw) (For 0207 fitting.) (0207取付用) 

2006-2144 2nd. curtain roller-B 2幕ローラーB
2006-2148 Ratchet stop spring ラチエット止め板
2006-2198 Light shield plate 光線もれ防止板
2006-2204 X earth plate Xアース板

■Magnet (for Type 4 shutter) / マグネットについて (Type 4 シャッター用)

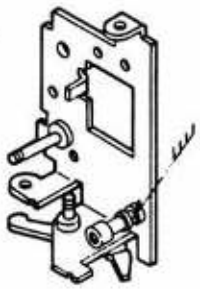
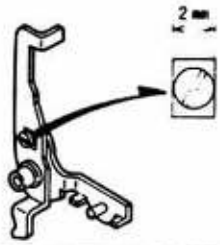
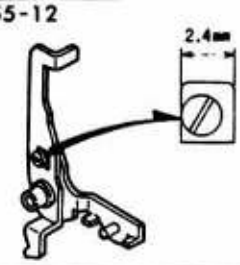
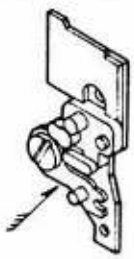
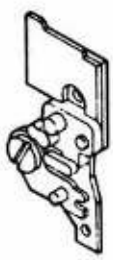
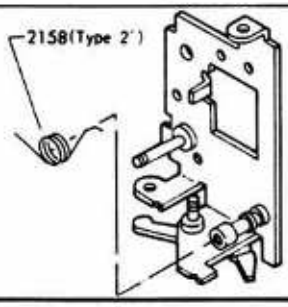
- Parts related to magnet for Type 4 shutter are available in two types as shown below, but Type A is not supplied. For replacement required, use Type B parts as the specified set.
- Type 4 シャッター用のマグネット関連部品は下表の2種類ありますが, Type Aは供給しません。交換が必要な場合はType Bの部品にセットで交換して下さい。

Type A	Type B
	2006-2749-02 
	2006-2791-02 
	2006-2762-02 
	2017-2168-01 

2017-2168	Trigger base plate screw トリガー台板取付ねじ
2006-2749	Shutter magnet core シャッターマグネット鉄芯
2006-2762	Magnet collar マグネット取付カラー
2006-2791	Shutter magnet bobbin シャッターマグネットボビン

■Description of Type 2′ / Type 2′シャッターについて

- Type 2′ shutters are manufactured in small quantities for the production period between Type 2 and Type 3, and the parts of control base plate mentioned below are different from those of Type 2.
- No Type 2′ parts will be supplied. For replacement required, use Type 2 parts as the specified set.
- Type 2′シャッターとはType 2とType 3の間に少数生産されたタイプで，制御台板部の下表の部品がType 2と異なっています。
- Type 2′の部品は供給しません。交換が必要な場合は下表のType 2の部品にセットで交換して下さい。

Type 2′	Type 2
	2006-0202-12
	2006-0255-12 
	2006-0264-11 
	2006-2149-01 2006-2192-02
	2006-2158-01

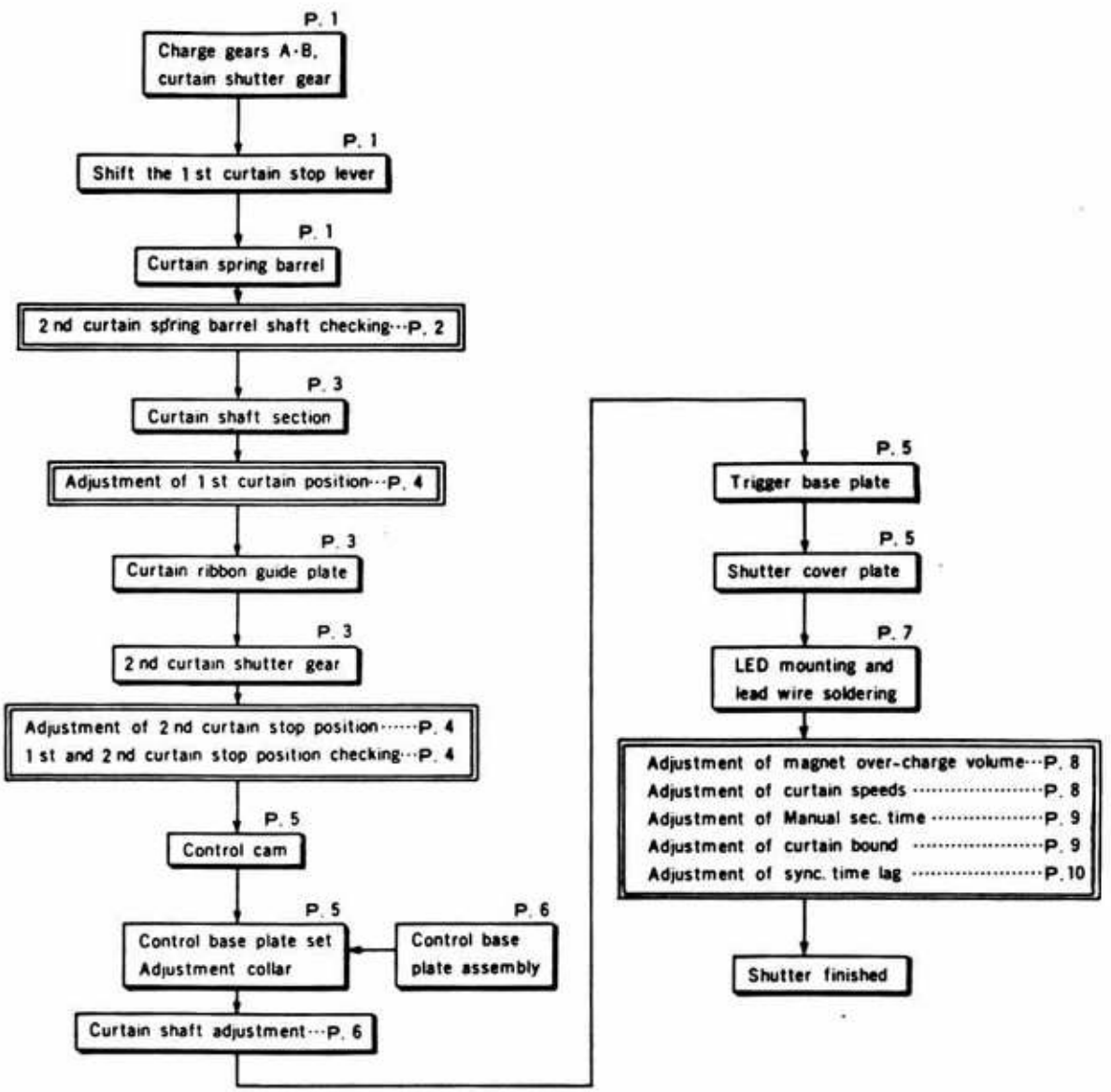
Disassembly, Assembly and Adjustment

■ For disassembly, refer to the related pages in the reverse order as the contents of this manual are arranged in the order of procedures for assembling and adjusting.

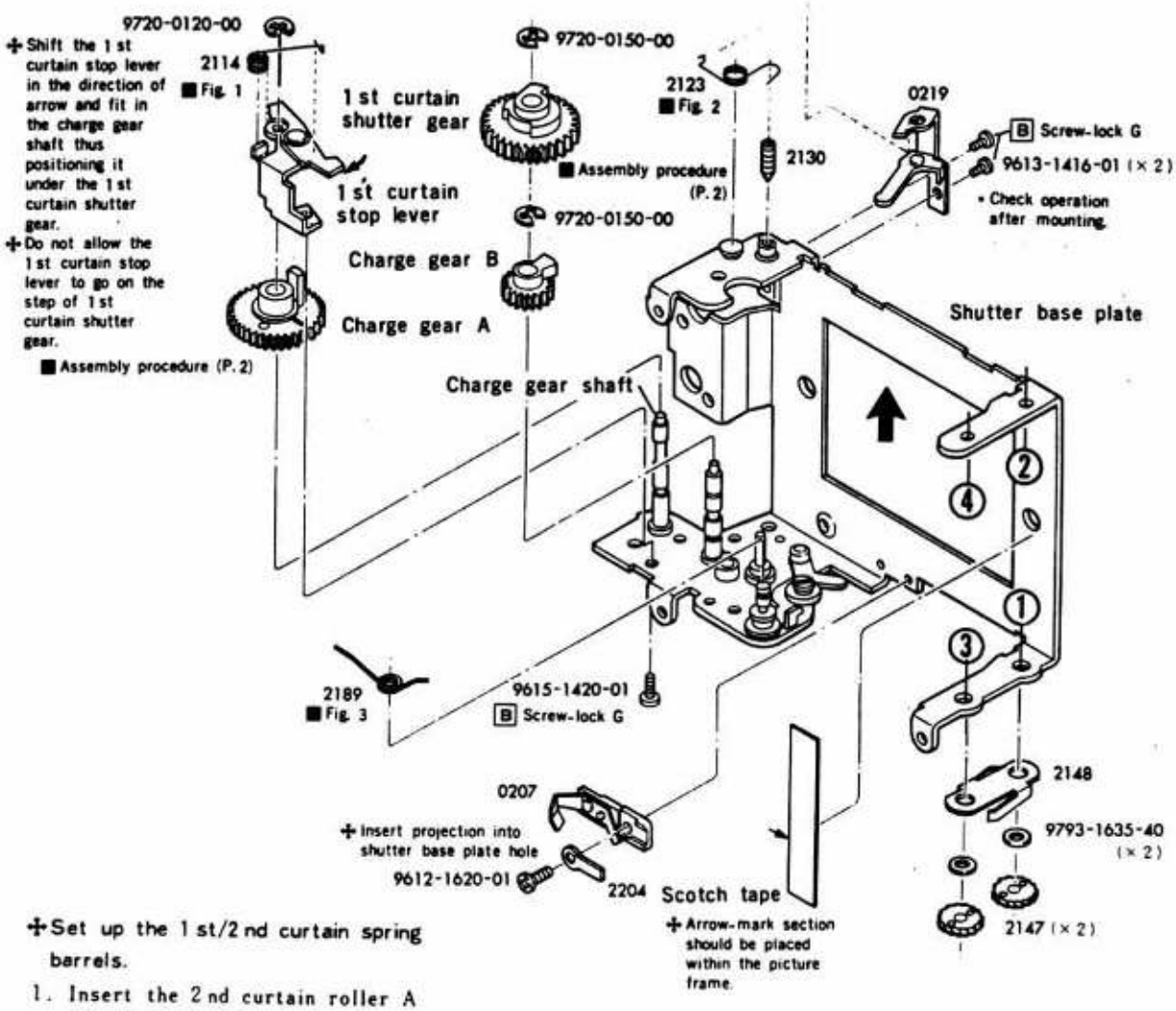
— Abbreviations —

✣ : Assembly noto and reference.
[O] : Oil to be used and where to apply it.
[B] : Bond to be used and where to bind.
[T] : Special tool No. and where to use it.

■ Assembling/Adjustment Procedures Chart

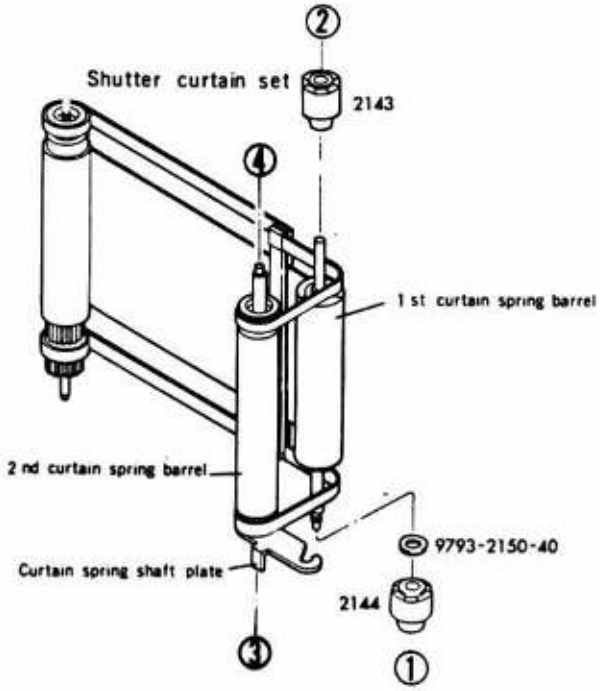

P. 1
Charge gears A·B, curtain shutter gear
P. 1
Shift the 1 st curtain stop lever
P. 1
Curtain spring barrel
2 nd curtain spring barrel shaft checking···P. 2
P. 3
Curtain shaft section
Adjustment of 1 st curtain position···P. 4
P. 3
Curtain ribbon guide plate
P. 3
2 nd curtain shutter gear
Adjustment of 2 nd curtain stop position·····P. 4
1 st and 2 nd curtain stop position checking···P. 4
P. 5
Control cam
P. 5
Control base plate set Adjustment collar
P. 6
Control base plate assembly
Curtain shaft adjustment···P. 6
P. 5
Trigger base plate
P. 5
Shutter cover plate
P. 7
LED mounting and lead wire soldering
Adjustment of magnet over-charge volume···P. 8
Adjustment of curtain speeds ·····P. 8
Adjustment of Manual sec. time ·····P. 9
Adjustment of curtain bound ·····P. 9
Adjustment of sync. time lag ·····P. 10
Shutter finished

1 Charge gears A·B, First curtain shutter gear, and curtain spring barrel



✣Set up the 1st/2nd curtain spring barrels.

1. Insert the 2nd curtain roller A (2143) B (2144) into the 1st curtain spring barrel. And mount the 1st/2nd curtain spring barrel shaft onto the shutter base plate in the order of numbers.
   • When mounting No.④, slightly widen the shutter base plate in the direction of arrow.
2. Turn the curtain spring stop plate on the 2nd curtain spring barrel shaft in the direction of arrow, thus fit it in the 1st curtain spring barrel shaft groove. (P. 2)
   • After mounting, check for vertical looseness of 2nd curtain spring barrel shaft. (P. 2)
3. Attach the ratchet stop spring (2148), 9793-1635-40 (×2) and ratchet (2147) in accordance with the procedure on Page. 2. Then charge the curtain spring to such an extent that the 1st and 2nd curtain ribbon do not slacken.



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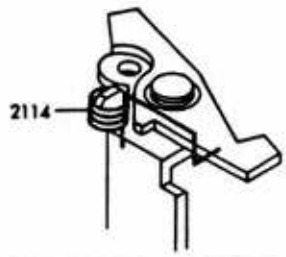
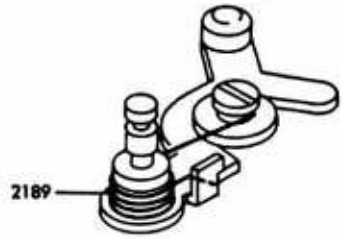
■Fig. 1 2114 Spring setting



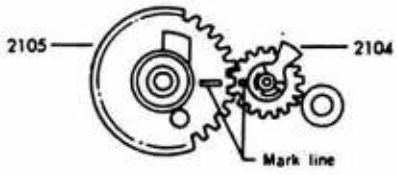
■Fig. 2 2123 Spring setting

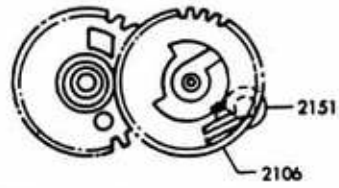
■Fig. 3 2189 Spring setting



■ Charge gear A and First curtain shutter gear assembly procedure

1. Align the mark of charge gear A (2105) to that of charge gear B (2104) as illustrated below.
   - **NOTE:** After assembling charge gears, do not turn the gears. If the marks are not aligned to each other, under-or over-charge will occur.
2. Then mount 1st curtain shutter gear (2106) in such a position that the projection on the back is in contact with the left side of stopper (2151) of shutter base plate.





■ Second curtain spring barrel shaft checking, and Ratchet stop spring, Ratchet mounting

■Checking for vertical looseness of 2nd curtain spring barrel shaft.

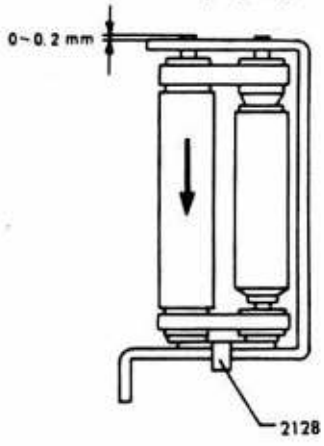
Fit in curtain spring shaft stop plate (2128) of the 2nd curtain spring barrel shaft onto the 1st curtain spring barrel shaft, and then press down the 2nd curtain spring barrel in the direction of arrow to make curtain spring shaft stop plate (2128) tight on the shutter base plate. At that time, the 2nd curtain shaft should be projected 0~0.2mm from the shutter base plate.

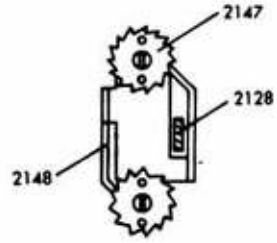
- If the 2nd curtain shaft projection is not within 0~0.2mm, check the shutter base plate.

■Ratchet stop spring and ratchet mounting

Mount ratchet stop spring (2148) as illustrated below. Also attach 9793-1635-40, ratchet (2147). Then charge the spring to such an extent that the 1st and 2nd curtain ribbons do not slacken.

- The end of ratchet stop spring (2148) should be at the tooth bottom of ratchet (2147).





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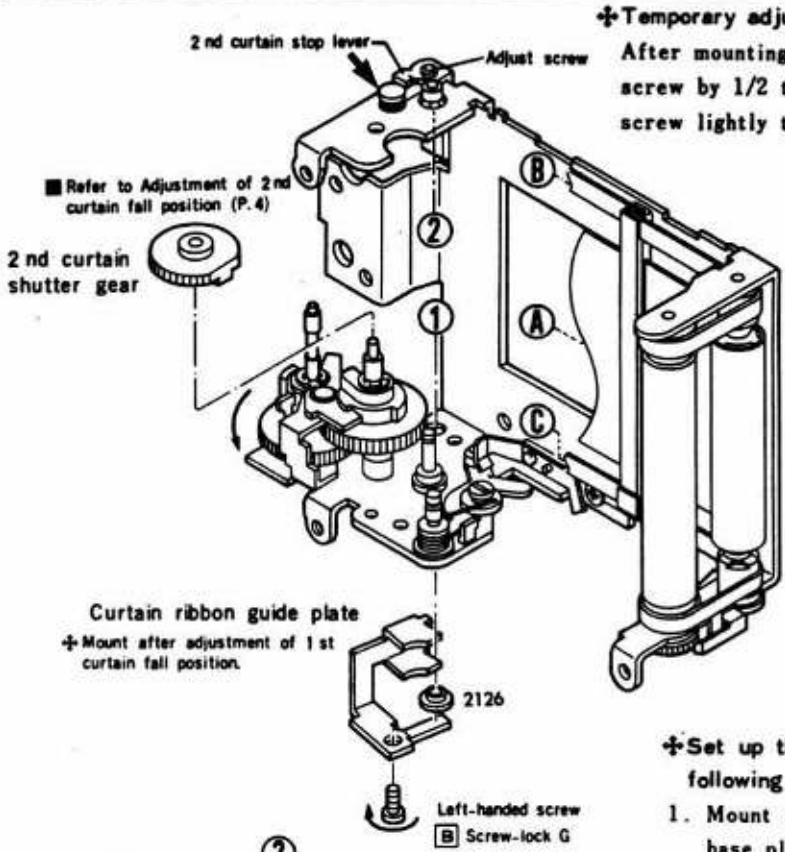
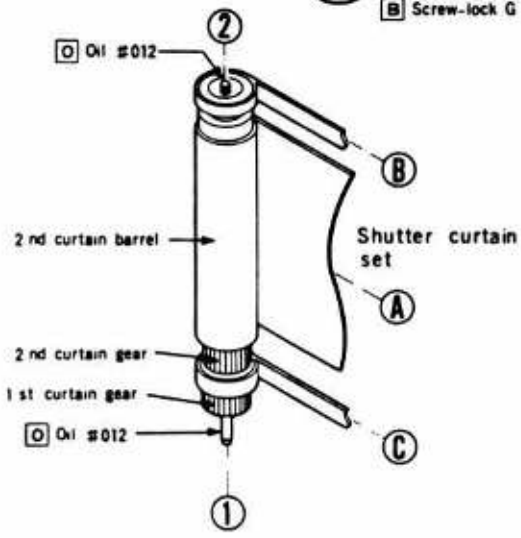
2 Curtain shaft section·Second curtain shutter gear


2 nd curtain stop lever
Adjust screw
■ Refer to Adjustment of 2 nd curtain fall position (P. 4)
2 nd curtain shutter gear
Curtain ribbon guide plate
✣ Mount after adjustment of 1 st curtain fall position.
2126
Left-handed screw
B Screw-lock G

✣Temporary adjustment of curtain shaft looseness

After mounting 2131, loosen the curtain shaft adjust screw by 1/2 turn from the position where the adjust screw lightly touches the curtain shaft.



✣Set up the curtain shaft side according to the following procedure.

1. Mount the curtain shafts onto the shutter base plate.
2. Adjustment of 1 st curtain fall position (P. 3)
3. Apply curtain ribbon guide plate (2131) to shutter base plate in such a way as to catch. The ribbon part of 1 st curtain gear (2135). Then mount curtain shaft receiver B (2126) and make the temporary adjustment of curtain shaft looseness.
4. Mount 2 nd curtain shutter gear (2107) and adjust the 2 nd curtain fall position. (P. 4)
5. Shift 2 nd curtain stop lever (0219) and charge gear A (2105) respectively in the direction of arrow, then stop the 1 st and 2 nd curtains at the positions of complete winding. Finally, check the 1 st and 2 nd curtain stop positions. (P. 4)

■ Adjustment of shutter curtain position

■Adjustment of shutter curtain position

1. Shift 2 nd curtain stop lever (0219) in the direction of arrow and turn 2 nd curtain barrel (2129) to wind the 2 nd curtain and then stop it at the center of picture frame.
2. Turn 1 st curtain gear (2135) in the direction of arrow and maintain the 1 st curtain slit at the position as illustrated. Then turn 1 st curtain shutter gear (2106) in the direction of arrow to let it contact the stopper of shutter base plate. Thus, engage 1 st curtain gear (2135) with 1 st curtain shutter gear (2106) and fit in curtain shaft receiver B (2126).

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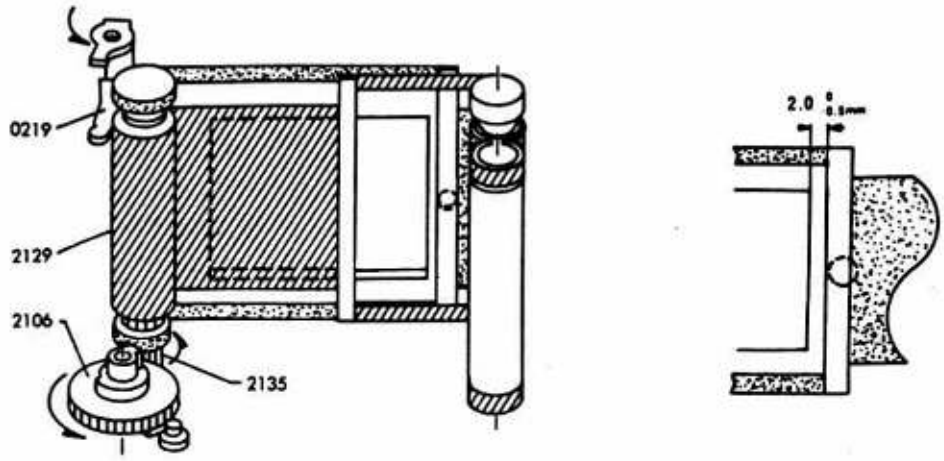
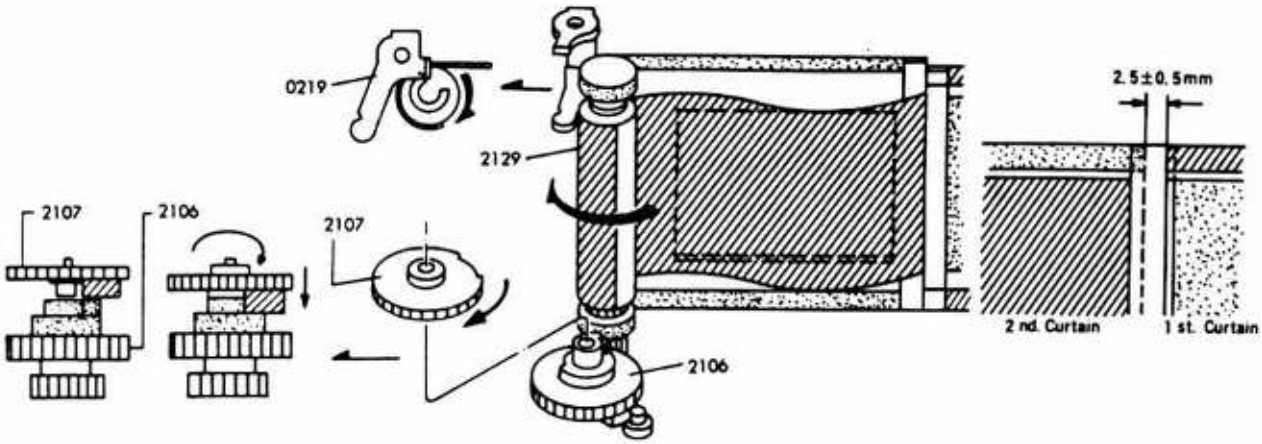
• **CHECK:** Turn charge gear A (2105) in the direction of arrow to operate the 1st curtain. Then the 1st curtain slit position should be as illustrated below.



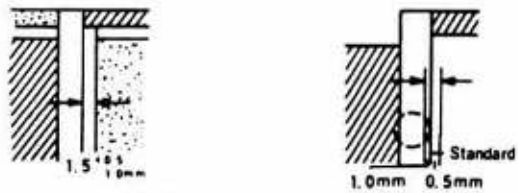
■Adjustment 2nd curtain stop position

1. With the 2nd curtain stopped, turn 2nd curtain barrel (2129) in the direction of arrow and hold it when 2nd curtain stop lever (0219) is in contact with 2nd curtain barrel (2129) as illustrated below.
2. Fit in 2nd curtain shutter gear (2107) as illustrated, thus engaging it with the gear of 2nd curtain barrel (2129), set 2nd curtain stop lever (0219) free to turn 2nd curtain shutter gear (2107) in the direction of arrow until it stops on 1st curtain shutter gear (2106).
   • **CHECK:** When 2nd curtain shutter gear (2107) is stopping on the 1st curtain shutter gear, curtain overlap should be within 2.5±0.5 mm the 1st curtain slit position.



■1st and 2nd curtain stop position checking

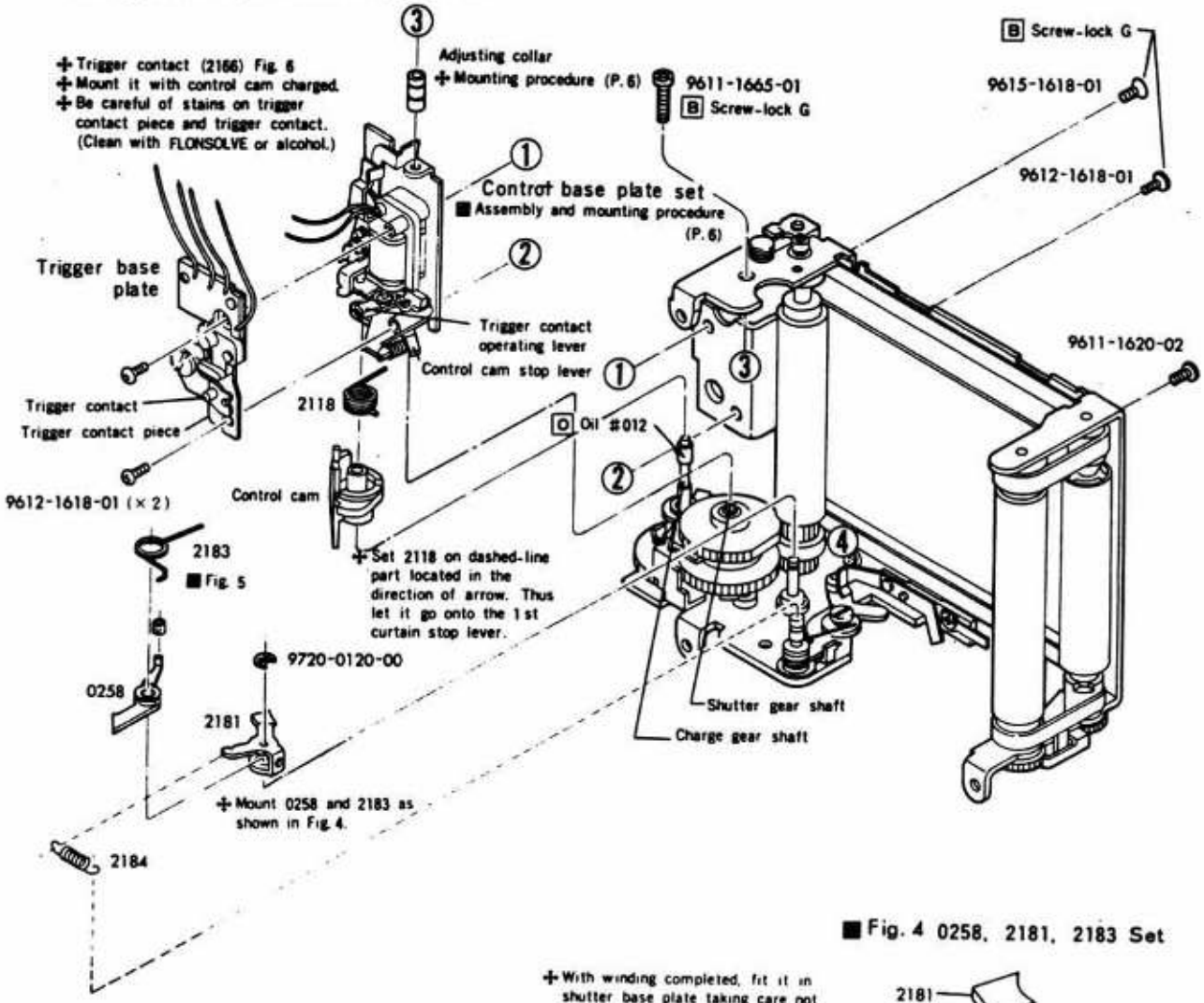
1. With winding completed, the 1st curtain stop position should be within 1.5±0.5 mm from the 2nd curtain slit position.
2. Shift 1st curtain stop lever (0212) to run the 1st curtain only. Then the 2nd curtain stop position should be within the range as illustrated.



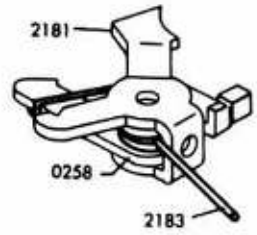
(Protrusion of 1st curtain slit from picture frame should be less than 0.5 mm.)

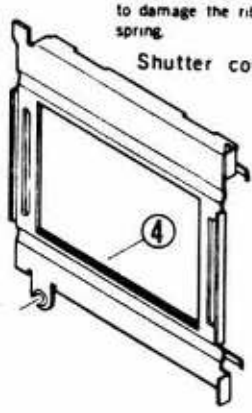
3 Control base plate set·Trigger base plate

■After completing the procedure on this page, carry out LED mounting and lead wire soldering on Page. 7, and performance adjustment.

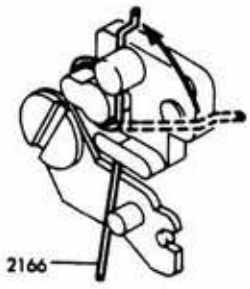


■Fig. 4 0258, 2181, 2183 Set



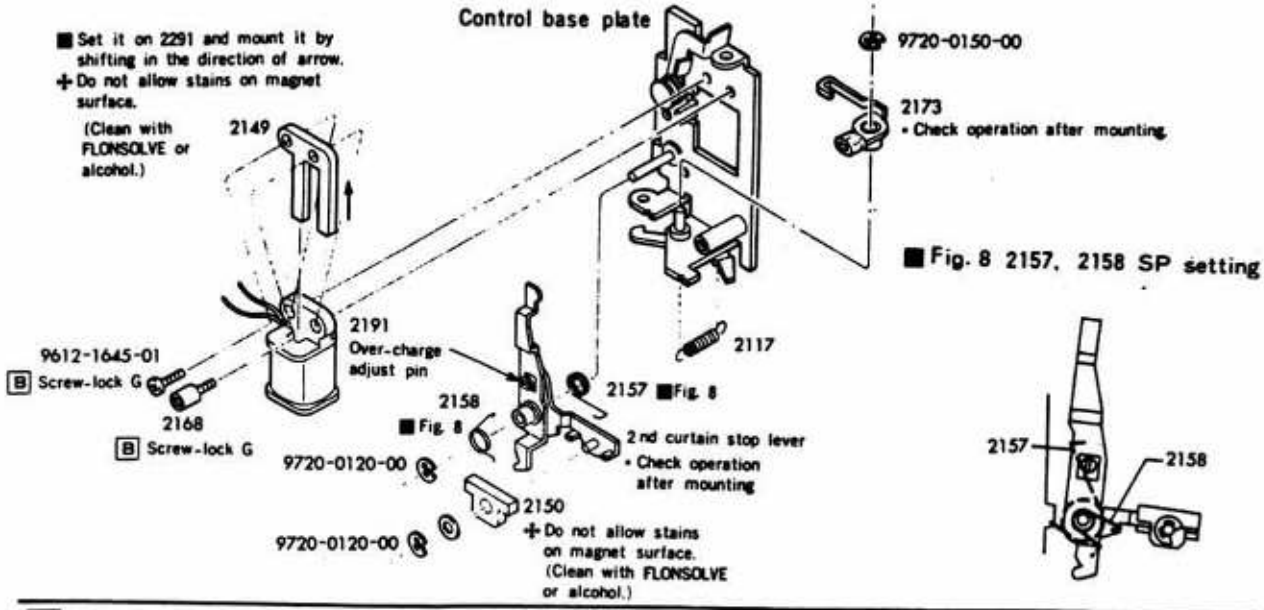

✣With winding completed, fit it in shutter base plate taking care not to damage the ribbon with brake spring.
Shutter cover plate
④

■Fig. 6 2166 assembly



■Fig. 5 2183 SP setting

■ Control base plate assembly



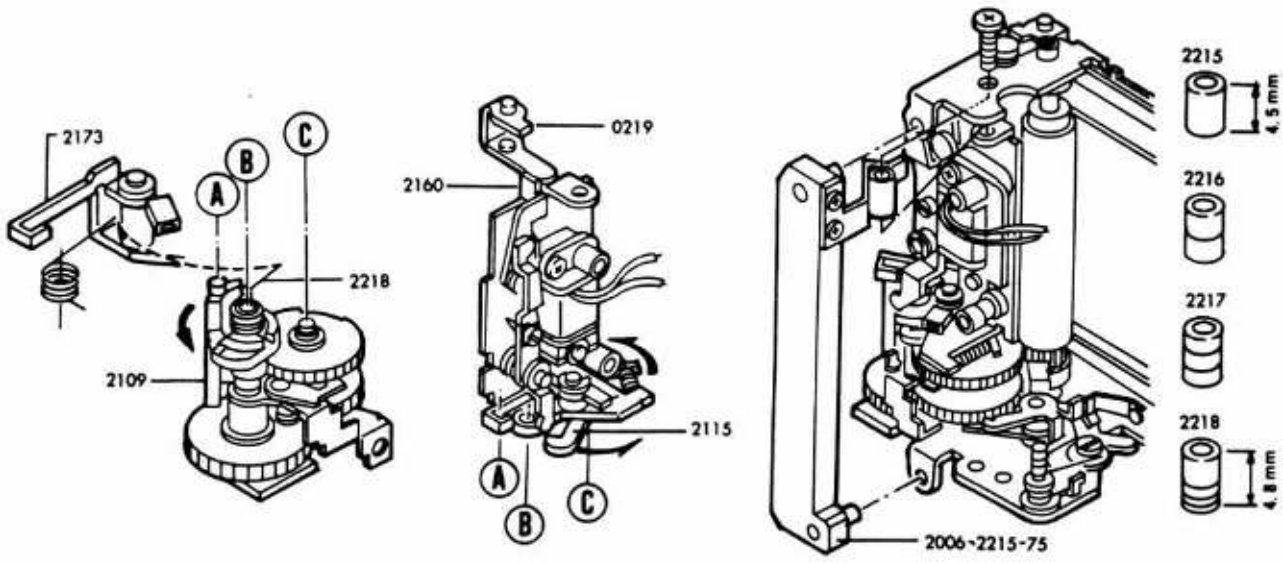
■ Control base set and adjusting collar mounting procedure

■ Control base plate set mounting

Shift control cam stop lever (2115) in the direction of arrow and set control cam operation spring (2118) onto the control base plate. Then couple the projection of control cam (2109) with trigger contact operation lever (2173), bring 2nd curtain release operation lever (2160) to the left side of 2nd curtain stop lever (0219) and thus engage it with shutter gear shaft (2110) and charge gear shaft (2111).

■ Adjusting collar mounting

Fit in collar setting jig (2006-2215-75) onto the shutter base plate, and mount the adjusting collar.

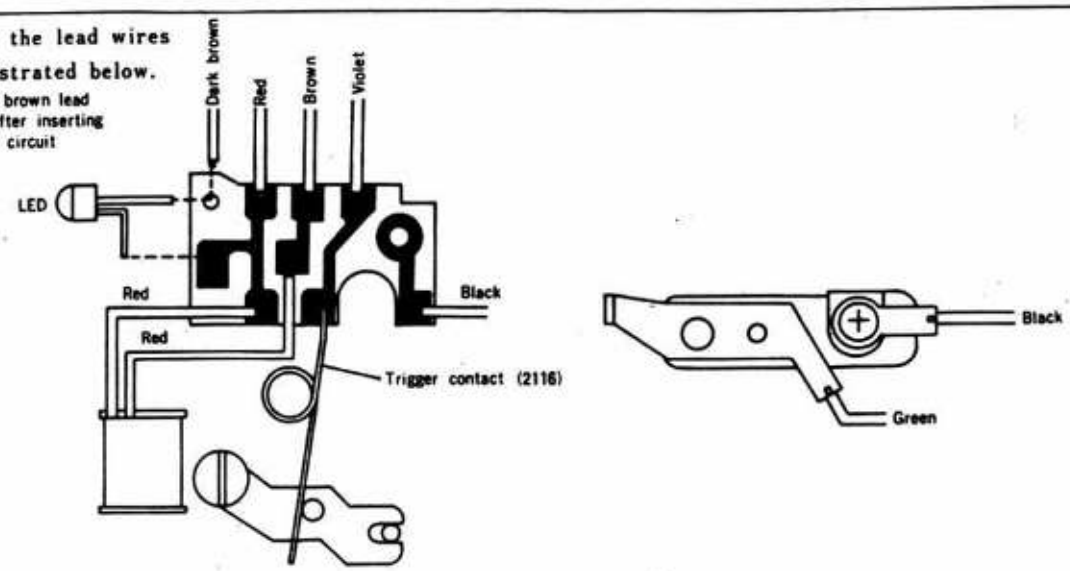


• After mounting, re-adjust the vertical looseness of curtain shaft to 0.1~0.2 mm by the adjust screw, and then apply screw-lock.

■ LED mounting and lead wire soldering

Solder the lead wires as illustrated below.

✣ Solder brown lead wire after inserting it into circuit board.



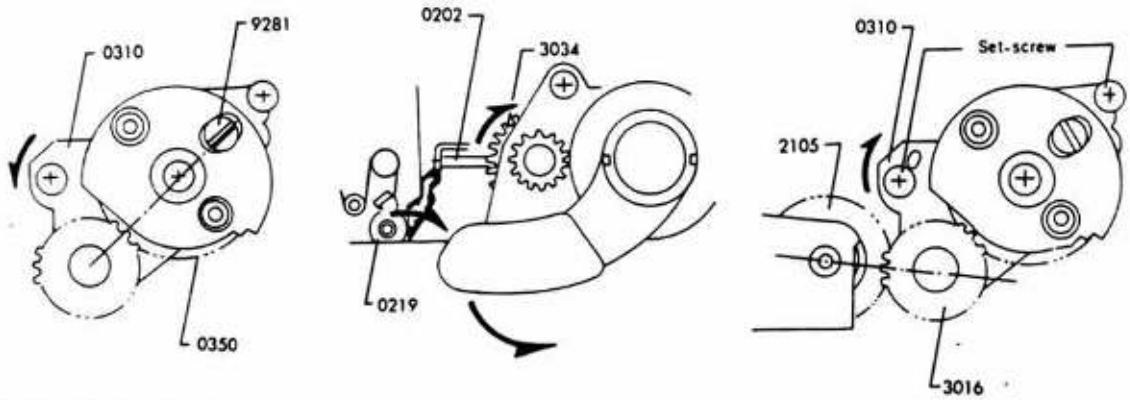
■ Shutter performance adjustment

■ Adjustment items

1. Over-charge volume of magnet
2. Curtain speeds
3. Manual sec. time
4. Curtain bound
5. Synchro time lag

■ Temporary body (2006-0101-75) and shutter setting procedure

1. Shift winding shaft receiver of temporary body in the direction of arrow beforehand. Position the eccentric screw (9281) of shutter charge gear D (0350) as illustrated below.
2. Mount the shutter on the front frame of body and set up the front frame by shifting it towards the body winding side.
3. Shift winding shaft receiver (0310) in the direction of arrow so that charge gear A (2105) is engaged with shutter charge gear C (3016) as illustrated below. Then tighten up the set-screw.
4. Make the adjustment by eccentric screw (9281) so that sprocket idle gear (3034) completes winding with 1 tooth over-charged from control base plate (0202) when winding is done slowly and 2nd curtain stop lever (0219) is greatly moved in the direction of arrow.



■ Precautions for measurement

If high speed operation or speed change occurs when the shutter connected to the measuring instrument is released, release the shutter with the MEAS-CAL switch set to either "CAL" or "MEAS".

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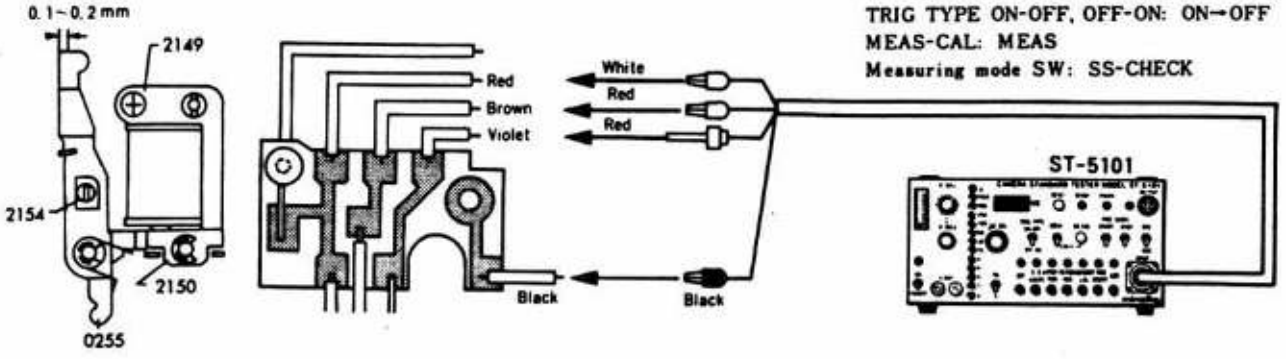
1 Adjustment of magnet over-charge volume

■Measuring instrument: Camera standard tester (ST-5101)

■Standard value: Over-charge volume 0.1~0.2 mm

1. Remove trigger base plate (0264) and charge the shutter to make shutter magnet (2150) tight on shutter magnet core (2149), hold it with finger, and release the shutter. Thus, make the adjustment with adjust pin (2154) so that the end of 2nd curtain release lever (0255) moves 0.1~0.2 mm.
2. Mount trigger base plate (0264) and connect the measuring instrument and shutter as illustrated below. Then make the setting of the tester as follows.
3. Release the shutter and check for high speed operation. If so, turn adjust pin (2154) to reduce the over-charge volume under the condition in 1.

■ST-5101
V-SEL: 1.5V
SS-SEL: 1 sec.
SS-X: SS
TRIG TYPE ON-OFF, OFF-ON: ON→OFF
MEAS-CAL: MEAS
Measuring mode SW: SS-CHECK

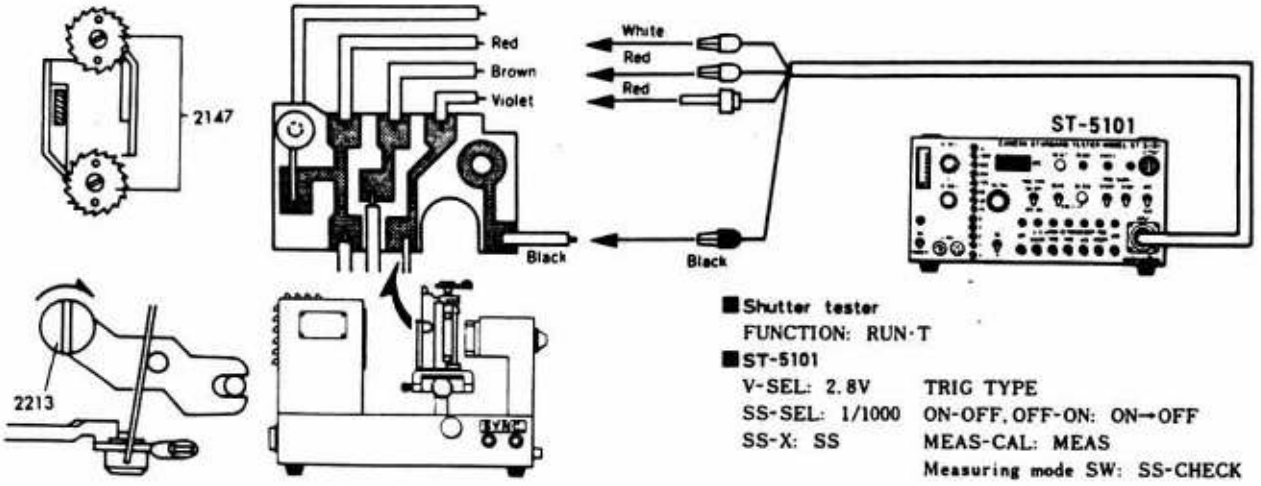


2 Adjustment of curtain speeds

■Measuring instruments: Camera standard tester (ST-5101)
Shutter tester (FS1D-MN4·S-2101)

■Standard valve: 10.7~11.3 ms both 1st and 2nd curtains.

1. Connect the measuring instrument and shutter as illustrated below. Make the setting of the tester as follows.
2. Set shutter tester to RUN·T, then release the shutter, and make the adjustment by ratchet (2147) so that both 1st and 2nd curtain speeds are 10.7~11.3 ms.
   • If curtain speeds cannot be adjusted because of high speed operation, open the shutter by turning trigger adjust plate (2213) in the direction of arrow.
3. Set the shutter tester to EXP·T, then release the shutter. Make the re-adjustment so that the values of ranges A and C become equal to each other.



■Shutter tester
FUNCTION: RUN·T

■ST-5101
V-SEL: 2.8V
SS-SEL: 1/1000
SS-X: SS
TRIG TYPE
ON-OFF, OFF-ON: ON→OFF
MEAS-CAL: MEAS
Measuring mode SW: SS-CHECK

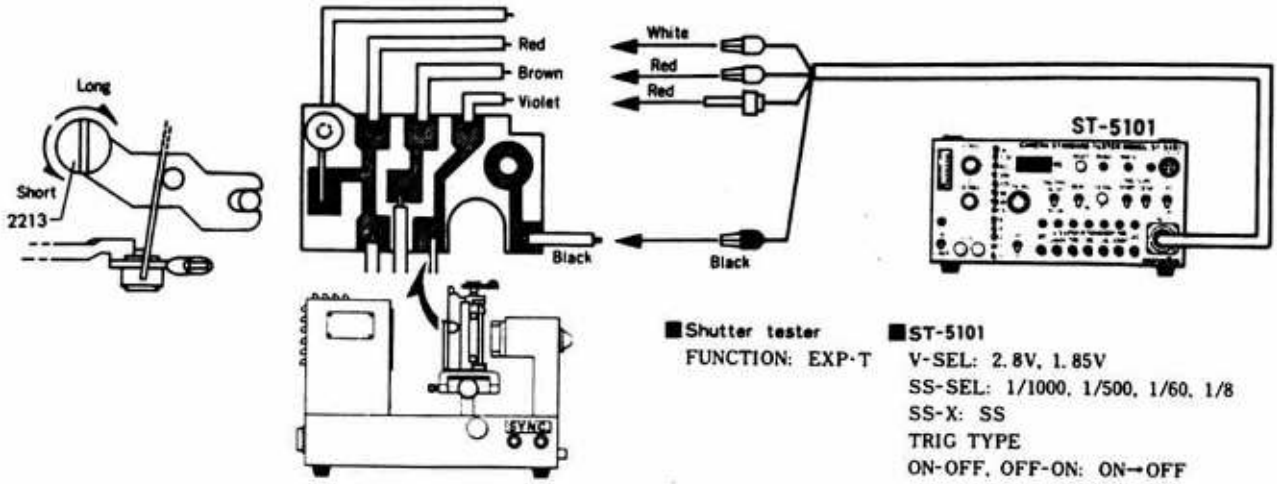
3 Adjustment of Manual sec. time

■Measuring instruments:
: Camera standard tester (ST-5101)
: Shutter tester (FS1D-MN4·S-2101)

■Standard valve:

Shutter speeds	Standard	Allowable values	
1/1000	0.98 ms	0.72~1.34 ms	±0.45 EV
1/500	1.95 ms	1.64~2.32 ms	±0.25 EV
1/60	15.6 ms	13.1~18.5 ms	
1/8	125 ms	105~ 148 ms	
1/1	1000 ms	841~1190 ms	

1. Connect the measuring instrument and shutter as illustrated below. Make the setting of the tester as follows.
2. Set V-SEL switch of camera standard tester to 2.8V, SS-SEL switch to 1/1000, then release the shutter. Make the adjustment by trigger adjust plate shaft (2213) so that the indication of shutter tester is nearly 0.98 ms.
3. Set SS-SEL switch to 1/500, then release the shutter. Again make the adjustment by trigger adjust plate shaft (2213), keeping the balance with the result in 1/1000.
4. Set SS-SEL switch to 1/60, 1/8, and 1, then release the shutter respectively. The measured values should be within the specifications.
5. Set V-SEL switch to 1.85 V and SS-SEL switch to 1/1000, then release the shutter. The difference from the value obtained at 2.8 V should be within 0.4 ms.



■Shutter tester
FUNCTION: EXP·T

■ST-5101
V-SEL: 2.8V, 1.85V
SS-SEL: 1/1000, 1/500, 1/60, 1/8
SS-X: SS
TRIG TYPE
ON-OFF, OFF-ON: ON→OFF
MEAS-CAL: MEAS
Measuring mode SW.: SS-CHECK

4 Adjustment of curtain bound

■Measuring instrument: Camera standard tester (ST-5101)
Shutter tester (FS1D-MN4·S-2101)

■Standard value: No bound in picture

1. Connect the measuring instrument and shutter as illustrated right. Make the setting of the tester as follows.
2. Release the shutter and check for curtain bound. If bound exists, adjust it by bending the brake spring of shutter cover (0203). Note that excessive bending will affect winding operation.

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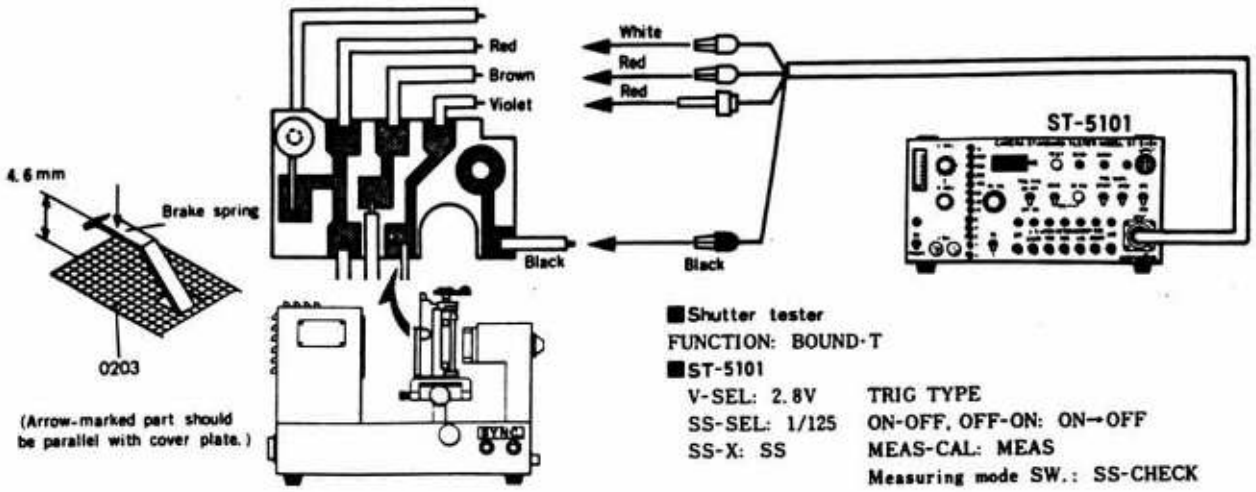


■Shutter tester
FUNCTION: BOUND·T
■ST-5101
V-SEL: 2.8V
SS-SEL: 1/125
SS-X: SS
TRIG TYPE
ON-OFF, OFF-ON: ON→OFF
MEAS-CAL: MEAS
Measuring mode SW.: SS-CHECK

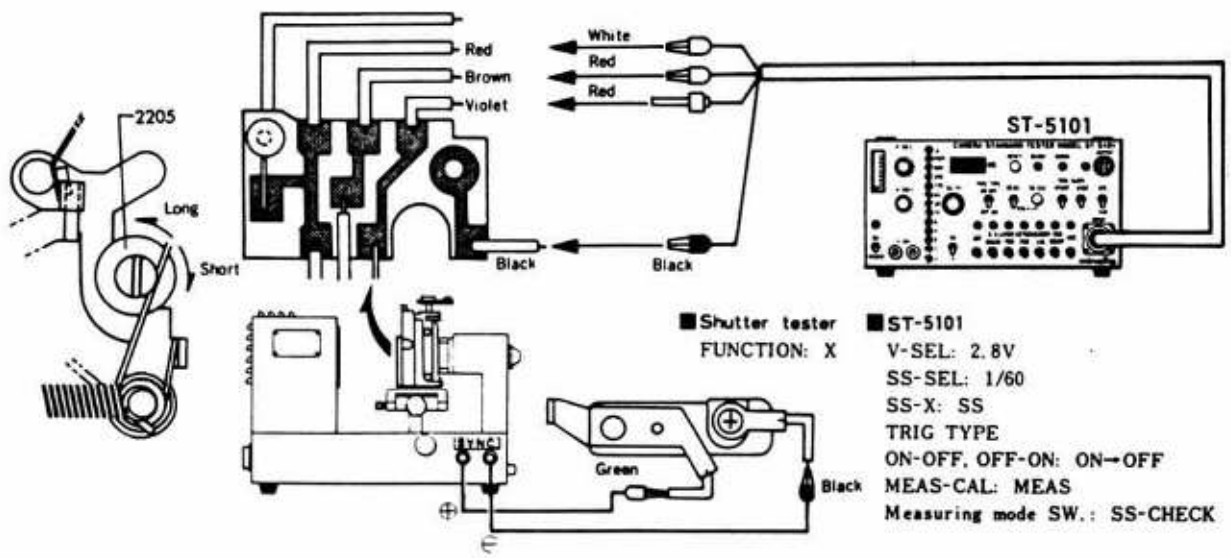
5 Adjustment of synchro time lag

■Measuring instruments
: Camera standard tester (ST-5101)
: Shutter tester (FS1D-MN4·S-2101)

■Standard valve:

Synchro contact	Allowable time lag	
X	Range A	0.45~0.7 ms
	Range B	2.5 ms or less

1. Connect the measuring instrument and shutter as illusrated below. Make the setting of the tester as follows.
2. Release the shutter and make the adjustment by X lever stopper (2205) so that the measured value for range A is as specified. At that time, the measured value for range B should be within the specification.



■Shutter tester
FUNCTION: X

■ST-5101
V-SEL: 2.8V
SS-SEL: 1/60
SS-X: SS
TRIG TYPE
ON-OFF, OFF-ON: ON→OFF
MEAS-CAL: MEAS
Measuring mode SW.: SS-CHECK